

DOI: 10.5455/2320-1770.ijrcog20150219

Research Article

Abnormalities in semen analysis among male partners of infertile couples: a study in a tertiary care level hospital of West Bengal, India

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Received: 23 November 2014

Accepted: 20 December 2014

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ABSTRACT

Background: The prevalence of infertility in the general population is 15%-20%. Of this, the male factor is responsible for 20%-40%. Analysis of semen is the most important diagnostic tool for evaluation of role of males in infertility. The study was conducted to determine the abnormalities in semen among male partners in infertile couples.

Methods: A descriptive study with cross-sectional design among male partners of infertile couples was conducted in the laboratory of the Department of Pathology at Burdwan Medical College, Burdwan in West Bengal during August 2011 to July 2012. Analysis of semen was done for semen volume, sperm number, sperm motility and presence of other cells.

Results: 7.45% samples were of inadequate quantity. 19.87 % of cases had oligozoospermia, 12.42% had azoospermia and 4.35% of males had asthenozoospermia. Pus cells were found in 12.42% cases.

Conclusions: Majority of the cases of infertility in males is due to oligozoospermia followed by azoospermia while less sperm motility or less amount of semen are also responsible in some cases.

Keywords: Semen analysis, Male infertility, Tertiary care hospital

INTRODUCTION

Infertility is defined as a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.¹ It is considered as social stigma in developing countries like India. The prevalence of infertility in the general population is 15%-20%. Of this, the male factor is responsible for 20%-40%.² In Indian couples seeking treatment, the male factor is the cause in approximately 23%.³ Analysis of semen is the most important diagnostic tool for evaluation of role of males in infertility. Semen has two major quantifiable attributes a) the total number of spermatozoa which reflects sperm production by the testes and the patency of the post-

testicular duct system and b) the total fluid volume contributed by the various accessory glands which reflects the secretory activity of the glands.⁴ Recently semen quality is reported to have been declining in the world. But study in North India revealed no change in quality whereas study in South India showed a decline in the quality of semen.^{5,6} Literature review could not reveal such study in this part of country. With this background the study was conducted to determine abnormalities in semen among male partners in infertile couples.

METHODS

It was a descriptive study with cross-sectional design. The study was conducted in the laboratory of the

Department of Pathology at Burdwan Medical College, Burdwan in West Bengal during August 2011 to July 2012. The study population included male partners of infertile couples. The cases were advised to observe abstinence from intercourse for 3-4 days. Semen samples were collected aseptically after masturbation in sterile wide-mouthed bottles within the hospital premises or home and delivered to the laboratory within one hour of collection. Analysis of semen was done for semen volume, sperm number, sperm motility and presence of other cells. The following criteria were used for interpretation of results of analysis: lower reference limit for sperm concentration as 15×10^6 spermatozoa per ml and lower reference limit for total motility (progressive + non-progressive) as 40%.⁴

RESULTS

Out of 161 semen samples studied, 7.45% were of inadequate quantity i.e. less than 1.5 ml (Table 1). 19.87% of cases had oligozoospermia (less than the reference level i.e. 1.5 million/ml) while 12.42% had azoospermia. 4.35% of males had asthenozoospermia i.e. sperm motility less than the reference level i.e. 40%. In 12.42% samples pus cells were found. All the 161 samples had alkaline pH and normal morphology of sperms. Size and particulars of testis were normal in all cases.

Table 1: Characteristics of semen samples (n=161).

Characteristics	Number	Percentage
Semen volume <1.5 ml	12	7.45
Oligozoospermia	32	19.87
Azoospermia	20	12.42
Sperm motility <40%	7	4.35
Presence of pus cell	20	12.42

DISCUSSION

The present study was conducted to determine the abnormalities in semen samples for detection of male infertility. In a study at Bangalore 6% cases had semen volume of less than 2 ml.⁷ A study conducted at rural Central India revealed that 22% of cases had semen volume of less than 2 ml.⁸ 33.8% males had semen volume less than normal in Nigeria study.⁹ Proportion of cases with azoospermia was less in Bangalore study⁷ whereas 25% cases had sperm count <20 million/ml in the study in Central India.⁸ The proportion of oligozoospermia is similar to the finding of the study in Bangladesh.¹⁰ In one Nigerian study the proportion of cases of azoospermia was less⁹ but in one study it was much more than the present study.¹¹ A study in Ibadan revealed similar proportion of azoospermia cases.¹²

Proportion of azoospermia cases were found to be similar in Bangalore study.⁷ A high proportion of cases were having azoospermia in Bangladesh study¹⁰ while that was less in one Nigerian study¹¹ and much less in another study at Nigeria.¹¹ Only 6.7% cases suffered from

azoospermia in Ibadan.¹² Less Motility of sperms were found to be more in Bangalore study.¹⁰ Sperms were found to have less motility in 10% cases in Bangladesh. Presence of pus cells was reported in 33% of cases in rural Central India study.⁸

Abnormal result in semen analysis contributes to infertility in males to a great extent. The present study revealed that majority of the cases of infertility in males is oligozoospermia followed by azoospermia while less sperm motility or less amount of semen are also responsible in some cases.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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DOI: 10.5455/2320-1770.ijrcog20150219

Cite this article as: Bhaduri (Bhattacharyya) N, Sarkar AP, Dewasi N, Ghosh TK. Abnormalities in semen analysis among male partners of infertile couples: a study in a tertiary care level hospital of West Bengal, India. *Int J Reprod Contracept Obstet Gynecol* 2015;4:100-2.