ORIGINAL ARTICLE

Pattern of Semen Fluid Abnormalities in Male Partners of Infertile Couples in Southeastern, Nigeria

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Abstract

Background: *The incidence of male infertility is increasing in our environment. There is a need to evaluate the partern of abnormality with a view to recommending appropriate interventions.*

We aimed to to analyze the seminal fluid parameters of the male partners of the infertile couples managed in the hospital over a 12 month period and to identify the pattern of abnormalities.

Methods: *A retrospective study of all the semen samples of male partners of infertile couples sumitted for analysis to the microbiology laboratory of Nnamdi Azikiwe University Teaching Hospital, Nnewi Nigeria between 1st January 2006 and 31st December 2006*

The reports of the semen fluid analysis were retrieved from the records department and suplemented with the laboratory register.

Result: *Out of the 348 semen sample reports evaluated, 237 (68.0%) had semen fluid abnormalities. 104(30.0%) had single factor abnormalities while 133(38.0%) had combined factor anomalies. Asthenozoospermia 58(16.7%) was the main single abnormality, while Astheno-oligozoospermia 51(14.7%) and Astheno-oligo-teratozoospermia (13.2%) were the major combined factor abnormalities detected. Very few 5(1.4%) of the patients had azospermia.*

Conclusion: *The study showed a high rate of semen fluid abnormalities among the male partners of infertile women in our environment. The high preponderance of poor motility emphasizes the need to include men in programmes aimed at reducing sexually transmitted infections in Nigeria.*

Key words: *Semen, abnormalities, male partners, infertility*

Date Accepted for Publication: 18th June 2010
NigerJMed 2010: 286 - 288

Introduction

Infertility carries a lot of psycho-social stress for the couples in our environment. This is because of the very high premium placed on child bearing by the traditional African society. The stress is often, worse for the women on account the partriachal nature of the African culture. But we know that conception, in addition to favourable female factors, also depends on a normal functioning male reproductive system. For fertilization to occur, the male must be able to produce viable and healthy sperm cells and must also be able to deposit same within the female genital tract.

Studies in Nigeria have shown a very high rate of male infertility as evidenced by high incidence of poor semen quality among male partners of infertile couples[1-11]. These reports may even be underestimation of the male factor problems in our environment as our men do not easily volunteer the details of their sexual history and cases of erectile dysfunction and impotence are sometimes missed. Therefore, evaluation of the male partner in all cases of infertility is of paramount interest.

Semen fluid analysis has been the standard 1st line investigation in evaluating male infertility. The information gotten from a well analysed ejaculate in most cases enables the clinician to determine the nature of problems manifesting as infertility in the male patient. The methods utilized range from the traditional manual method involving the use of counting chambers to the more modern method of computer assisted semen analysis (CASA) which is the method used in most andrology units in the developed countries.

For the ease of comparing and interpreting results from different centers, the World Health Organization has introduced a standardized procedure for analysing the human semen.[12]

With the reports of increasing incidence of male infertility in our environment, there is an essential need for a periodic assessment of the semen quality among our male partners in infertile couples.

This study aims to analyze the semen fluid parameters of the male partners of the infertile couples seen in the hospital and describe the variuos patterns of abnormalities found with a view to recommending appropriate remedies.

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Materials and Methods

This is a retrospective study of all the semen samples of male partners of infertile couples sumitted for analysis to the microbiology laboratory of Nnamdi Azikiwe University Teaching Hospital, Nnewi Nigeria between 1st January 2006 and 31st December 2006.

The reports of the semen fluid analysis were retrieved from the records department and suplemented with the laboratory register. The manual method involving the use of Neubers counting chambers and the microscope was used for the analysis of the semen samples in all cases and interpretation of the results was donebased on the WHO criteria.

The subjects were advised to abstained from sexual intercourse for 3 days before semen collection and they were provided with wide mouthed, sterile specimen containers for that purpose. Masturbation was the recommended method for semen cllection. Semen was either produced in the side room or at home, and brought to the hospital within one hour of production.

Initial macroscopic evaluation of the semen sample for appearance, viscosity and measurement of volume was usually followed by microscopic examination of a wet preparation using 40x microscope objective to evaluate the motility and morphology of the sperm cells. The presence of leucocytes, other round cells and agglutination in the wet preparation was also noted. Following that a sample of the semen was diluted with 1% formalin in distilled water and then placed in the improved Neuber chamber and counting of the sperm cells was done.

The WHO guideline was used to classify the various semen anomalies identified. Azospermia refers to complete absence of spermatozoa in the ejaculate while Oligozoospermia refers to spermatozoa concentration lessthan 20 million per ml. Teratozoospermia implies that less than 30% of the spermatozoa have abnormal morphology while asthenozoospermia refers to a situation where less than 50% of the spermatozoa are actively motile. The proportion of the samples showing abnoralities in sperm counts, motility and morphology were calculated and expressed in simple percentages.

Result

Seminal analysis results of 348 patients were evaluated. Out of this number, 237 (68.0%) had semen fluid abnormalities. 104(30.0%) had single factor abnormalities while 133(38.0%) had combined factor anomalies. Asthenozoospermia 58(16.7%) was the main single abnormality detected while Astheno-oligozoospermia 51(14.7%) and Astheno-oligo-teratozoosermia were the major combined factor abnormalities found. Only 5(1.4%) of the patients had azospermia. The classification of the semen abnormalities is shown in Table 1.

Table I: The Classification of Semen Abnormalities

Type of Abnormality Number (n=238)		percentage
Single Abnormalities		
Azospermia	5	1.4%
Oligozoospermia	31	8.9%
Asthenozoospermia	58	16.7%
Teratozoospermia	10	2.9%
Combined Abnormalities		
Astheno/Oligozoospermia	51	14.7%
Astheno/Teratozoospermia	21	6.0%
Oligo/Teratozoospermia	15	4.3%
Astheno/Oligo/Terato-zoospermia	46	13.2%

Discussion

The incidence of 68.0% of abnormal semen fluid parameters among the male patners of the infertile couples shown by this work is higher than 27.3% reported by adeniji et al [6] in Ibadan and 42.2% and Esimai et al [6] in Ile-Ife but lower than 71.0% and 86.0% reported by Imade et al[4] and Ibekwe[2] in Jos and the neighbouring Ebonyi state respectively. These regional variations may reflect differing patients' characteristics but may also have some ethnic contributions.

Asthenozoospermia (poor motility) was the major single abnormality identified in this work. This is similar to other reports from our environment [2,3] and differs from the report from other regions which identified oligozoospermia as the main single abnormality. [4,5] Astheno/oligospermia (combined poor motility and sperm count) as the major combined defects identified is similar to the findings of Imade et al[4] in Jos and Idris et al[5] in Maiduguri, Nigeria.

Poor sperm motility is usually correlated with an infective processof the genital tract. [13,14] Therefore, its significant contribution to semen fluid abnormalities in our environment shows a high incidence of sexually transmitted infections among our infertile men and strongly indicates that men must be included in programmes designed to reduce the burden of sexually transmitted infections within the Sub Saharan Africa. Attempts must be made to culture semen and

determine antibiotic senstivity whenever samples are sent for analysis and to also, look for markers of infection such as pus cells during microscopy.

The very low incidence of azospermia among our infertile men had been reported by previous studies.[2-6] This indicates a possible good prognosis for treatment as the management for azospermia is technically more difficult and may require the use of Artificial reproductive techniques which are out of the reach of majority of our people.

Conclusion

The contibution of male factor to infertility in our environment is high. Men should be targeted during programmes designed to reduce the incidence of sexually transmitted infections in Nigeria. More attention should be paid to the male partner whenever a couple presents for infertility management

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