ORIGINAL ARTICLE

SEMEN ANALYSIS OF INFERTILE NIGERIAN MALES IN SOKOTO STATE NORTH WESTERN NIGERIA.

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ABSTRACT

Background: Male infertility can occur when sperms are limited in number or function. Infertility is a socially destabilizing and stigmatizing condition for couples but in our society many erroneously believe it is a problem from the female alone.

Objectives: To evaluate the semen of infertile male partners of couples attending gynaecological clinic of Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto.

Methodology: This was a prospective study conducted at the gynaecological clinic of Usmanu Danfodiyo University Teaching Hospital Sokoto between 1st January 2011 and 30th June 2011. For the purpose of this study all male partners of women who complained of inability to conceive after a period of a year or more of unprotected sexual intercourse were recruited into the study. Data was extracted and analyzed using SPSS (version 11). A P-value of less than 0.05 was considered significant.

Results: There were 125 cases of male infertility recruited during the period. Majority of the male patients (51.2%) were aged 40 years and above. Considerable percentage of the patients (46.4%) presented with duration of Infertility of 5 years and above. The identified risk factors were a previous history of Urethral discharge (37.6%) and previous treatment of sexually transmitted infections (29.6%). Hypospermia (33%) and Asthenospermia (42.4%) were the commonest disorders of semen Parameters seen. Low sperm count was seen in (36.8%) of study subjects, Azoospermia was observed in 8% while 16% of them had disorder of sperm morphology.

Conclusion: The study shows that infertility is associated with relatively high rate of abnormal sperm volume, motility and count. In addition, genital tract infections are major associated factors. Therefore, efforts to address STIs through primary, secondary and tertiary preventive measures may make significant contributions to reducing the prevalence of male infertility in Sokoto State.

Key Words: Semen analysis, Infertile men, Sokoto.

Introduction

World Health Organization (WHO), defined infertility as the inability to establish pregnancy within a specific period of time, usually 1 year, in couples of child reproductive age who are having regular intercourse without contraception¹. Over 80% of couples who have regular sexual

intercourse will achieve pregnancy in one year, and approximately 92% can achieve a pregnancy within two years². Infertility is primary if the couples have never conceived while secondary infertility is the inability to conceive after an earlier pregnancy³. Infertility is by far the commonest presenting complaint among gynaecological patients in Nigeria⁴. Infertility affects males and females

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equally, although many people believe that infertility is a female problem⁵.
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As a result of high premium placed on child bearing in many African societies, infertility is a socially destabilizing condition for couples. Infertility causes stigmas especially for women and it is a cause of marital disharmony, social ostracisation and physical violence against women. As a result of social consequences of infertility, some affected women have been known to manifest various psychosexual disorders⁶. Available evidence indicates that women disproportionately suffer the social and psychological consequences of infertility in Africa as compared to men⁷.

Infertility affects 8-12% of couple's world wide⁸. It was reported that two of every five patients attending the gynaecological clinic in our environment complained of infertility⁹. In Nigeria, the prevalence of 20 to 30%¹⁰ has been reported. The prevalence of 20%¹¹ and 35 %¹² has been reported in Ile -Ife, South Western Nigeria and Ilorin North Central Nigeria respectively. The causes of infertility has been categorized into four main causes; male infertility when it is principally due to poor semen parameters; female infertility when infertility is due to factors such as occlusions of fallopian tubes, uterine or endometrial abnormalities, abnormal cervix and an ovulation in female partner¹³.

There is increasing awareness of the male factor in infertility¹³. The basic means for evaluating male fertility is the microscopic examination of semen, a procedure that depends for its effectiveness to a considerable extent on the experience of the examiner. Seminalysis, though subjective, is the most useful and universally accepted method of quantifying male fertility potential.⁵ Serum estimation of gonadotrophic hormones and testosterone, although desirable, could be normal in most infertile males²

There is paucity of data as regards the semen analysis of infertile men in North Western Nigeria. This study was thus conducted with the following objectives:

To evaluate the semen of infertile males couples attending gynaecological clinic at UDUTH Sokoto and to ascertain factors associated with abnormal semen parameters in infertile males.

Methodology

This was a prospective study conducted at the gynaecological clinic of Usmanu Danfodiyo University Teaching Hospital Sokoto between 1st January 2011 and 30th June 2011. The subjects were husbands of women undergoing investigation for infertility at the gynaecological clinic of the hospital. These men were adequately informed about the study and their consents obtained. The semen of the subjects were collected after three to five days of abstinence from sexual intercourse. These men samples were collected aseptically by masturbation into sterile wide- mouthed specimen bottles within the hospital and at home (in exceptional cases) and delivered to the hospital within one hour of collection. The samples collected were all analyzed within ten minutes by a laboratory scientist.

Semen analyses were performed according to the methods and standards of the World Health Organization¹³. The differences between the relative proportions of observed values were analyzed using SPSS version 11. Numerical values were given in the text as means $\pm$ standard deviation (SD) and p value less than 0.05 were regarded as statistically significant.

Results

A total of one hundred and twenty-five patients were recruited during the study period. The mean age of the patients was

41.48 ± 11.26 years (range 20 - 71 years) with 51.2% aged 40 years and above. Seventy one (56.8%) of them were in a monogamous setting. The mean duration of infertility was 6.35 years (range 1-27 years) with 46.4% presenting after 5 years (Table 1).

Table 1: Socio-Demographic Characteristics and Duration of Infertility

Variables	Number (%) N= 125
Age in years	
< 30	13 (10.4)
30-34	28 (22.4)
35-39	20 (16.0)
40 and above	64 (51.2)
Number of wives	
1	71 (56.8)
2	39 (31.2)
3	12 (9.6)
4	3 (2.4)
Previous pregnancy in the family	
0	47 (37.6)
<1 year	21 (16.8)
1 or more year	57 (45.6)
Duration of Infertility in years	
<5	67 (53.6)
5-10	36 (28.8)
11-15	9 (7.2)
>15	13 (10.4)

Fourty seven (37.6%) and 58 (62.4%) had primary and secondary infertility respectively.

Sexually transmitted infections as evidence by previous urethral discharge and past treatment of STIs were the commonest associated factors. Previous urethral discharge was present in 37.6% of patients, while 29.6% of the patients were treated for STIs. Only 9.6 per cent of the patients had a history of previous groin surgery and a similar number had varicocoele (Table 2).

Table 2: Associated factors in infertile male partner

Variables	Number (%) N=125
Previous urethral discharge	47(37.6)
Previous STIs treatment	37 (29.6)
History of groin surgery	12 (9.6)
Varicocoele	12 (9.6)
Previous history of testicular pain	9 (7.2)
Alcohol consumption	9 (7.2)
Hypertension	8 (6.4)
Diabetic mellitus	7 (5.6)
Bilaterally undescended testis	5 (4.0)
Trauma to the testicles	3 (2.4)

Some had more than one risk factor.

Abnormality of semen volume was seen in 34 (27.2%) patients. Only one patient had a semen volume of 7ml (Hyperspermia) while 33(26.4%) had Hypospermia. Fouty six patients (36.8%) had oligospermia. Mildoligospermia was seen in 22 (17.6%) patients while 8 (6.4%) patients had severe oligospermia. Azoospermia was seen in 10

(8.0%) patients. Disorder of sperm motility featured in 53 (42.4%) patients, with 19

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Table 3: Pattern of abnormalities detected on seminal fluid analysis

Variable	Number (%) N=125
Semen volume	
Normal	91 (72.8)
< 2 ml	33 (26.4)
>5 ml	1 (0.8)
Sperm counts /ml	
Normal	69 (55.2)
< 20 millions	22 (17.6)
5-10 millions	16 (12.8)
< 5 millions	8 (6.4)
0	10 (8.0)
Sperm motility	
Normal	72 (57.6)
<30%	34 (27.2)
0	19 (15.2)
Sperm morphology	
Normal	105 (84)
<30%	20 (16.0)

Discussion

This study was conducted to analyze the semen of male partners of patients that presented with infertility at UDUTH Sokoto. The sample size is quite small because the men in our environment are reluctant to subject themselves to investigations. This may explain the late presentation of 5 years in most patients in the study. In this study, primary and secondary infertility accounted

(15.2%) patients had no motile spermatozoa (Table 3).

for 37.6% and 62.4% of infertile cases respectively. This is similar to the finding in

Gombe North-Eastern Nigeria¹⁵ and other studies in sub-Saharan Africa¹⁶. However, the reverse was the case in most Western societies where primary infertility accounted

for 61 to 71% of cases, while secondary infertility were responsible for 29 to 33% of the condition¹⁷.

The mean (SD) age of the male partners was 41.48 ($\pm$ 11.26) years. This was slightly higher than 37.3 years reported in Benin-City¹⁸. Among the clients 43.2 percent were in a polygamous setting. These are not surprising since polygamy is widely practiced in our society and one of the commonest indications is infertility which the men usually erroneously attribute to be the fault of the female partner. Late presentation was also noted with 46.4% reporting after 5 years as was seen in the study in Gombe North-Eastern Nigeria¹⁵ and in Benin City where the median duration was 8 years⁶. This delay in seeking assistance may be due ignorance, unavailability and/or inaccessibility of appropriate services or previous consultations of traditional practitioners¹⁵.

Sexually transmitted infections as evidenced by previous urethral discharge and past treatment of STIs were the most important associated factors to male infertility in this study. Previous urethral discharge was reported by 37.6% of patients, while 29.6% of the patients were previously treated for STIs. This agreed with result of survey done by WHO, which showed that approximately 40% of men in Africa reported a history of sexually transmitted infections¹⁹. Reports from many centers in Nigeria confirmed the important role of genital tract infection as a cause of

male infertility in Nigeria^{20, 21, 22}. Other factors found in the study include previous groins

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testicular pain, alcohol consumption, chronic medical disorders which corroborated with findings by other researchers^{6,7}.

Abnormalities of semen volume were seen in 27.2% of men in this study. This was higher than the 7.3% reported in Enugu Eastern Nigeria²³. The abnormality might be due to improper sample collection, retrograde ejaculation or partial blockage of vas deferens²⁴. Severe oligospermia was seen in 6.4% of men in this study and this was below 16% documented by Okonofua⁶. Azoospermia occurred in 8.0% of the subjects. This was slightly higher than 5.3% reported in Benin City⁶ but far below 28.0% reported in similar study in a Nigeria¹⁸. Disorder of sperm motility in this study was 42.4% which was much lower than 93.7% in Enugu by Nwofia *et al*²³. Similarly abnormal sperm morphology of 16% in this data was less than 62.0% reported by previous authours²³

In conclusion, this study suggests that secondary male infertility is commoner than primary male infertility in our environment. The patients tend to present late and genital tract infections were major associated factors. Therefore, efforts to address STIs through primary, secondary and tertiary preventive measures will make significant contributions to reducing the prevalence of male infertility in Nigeria.

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