

Prevalence, Clinical Pattern and Major Causes of Male Infertility in Nnewi, South East Nigeria: A Five Year Review

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ABSTRACT

Background: *Infertility is a major cause of marital disharmony in Nigeria because of the high premium placed on child bearing. Unfortunately, the blame is on the woman most times.*

Objectives: *To determine the prevalence, clinical pattern and major causes of infertility based on the clinical and laboratory findings of both partners.*

Methodology: *This is a descriptive retrospective study of 268 infertility cases that presented at Nnamdi Azikiwe University Teaching Hospital, Nnewi over a five-year period, between January 1, 2005 and December 31, 2009.*

Results: *Of the 1449 patients that presented at the gynaecology clinic, 268 came because of infertility giving a prevalence of 18.5%. The mean age was 39.1±6.0 years. The majority (68%) stopped formal education at the secondary level. Seventy-two percent were employed as unskilled workers. 13% admitted the history of alcohol intake while none took tobacco. The mean duration of infertility was 5 years. The more frequent type of infertility was secondary infertility (59%). The leading cause of male infertility was oligospermia. Male factor infertility alone accounted for 52 (25%) of the cases.*

Conclusion: *Contribution of male factor to infertility is high. There is a need for public education on the contribution of male factor to infertility.*

Key Words: *Prevalence, clinical pattern, male infertility, Nigeria*

INTRODUCTION

Infertility can be defined as the inability of a couple to achieve pregnancy after one year of regular and unprotected sexual intercourse^{1,2}. In a society like Nigeria with traditional and extended families, there is a

lot of pressure on the couple to have a baby. The major role of a woman is still seen to be one of perpetuating the family name. Hence, the diagnosis of infertility can be an assault on self-image, sexuality and relationship³. The prevalence of infertility has been noted to be highly variable in Sub-Saharan Africa ranging from 20 – 46%¹. In contrast, an average rate of 10-15% have been consistently quoted in developed countries^{2,4,5}. This has been attributed to high rate of sexually transmitted diseases, complications of unsafe abortion and puerperal pelvic infections^{1,6}.

Infertility can be classified as primary when the woman has never conceived and secondary when she has achieved pregnancy before, regardless of the outcome. The World Health Organization (WHO) sponsored multicentre collaborative investigation of infertility study indicated that Africa might have a pattern of infertility quite different from that of other regions while primary infertility is commoner in other regions, secondary infertility is predominant in Africa.⁶ This has been attributed to high incidence of sexually transmitted disease, complications of unsafe abortion and puerperal sepsis^{1,6,7}.

The aetiology of infertility may be from either partner or both. However, in up to 15-20% of the couples, the aetiology cannot be found³. The reproductive process requires the interaction and integrity of the female and male reproductive tracts which will allow production and release of oocyte by the ovaries, production of adequate spermatozoa by the testes, the normal transport of the gametes to ampullary portion of the fallopian tubes where fertilization takes place and transportation of the embryo to the endometrial cavity for implantation and further development. Any factor that affects any of the process can cause infertility.

Causes of male infertility include; Problems of production of sperm like Oligospermia, Azospermia, Asthenozoospermia and Teratozoospermia. Obstruction of the ejaculatory ducts, which can result from infection, can also cause infertility. Alcohol intake and tobacco have been found to be risk factors for infertility in both partners. Causes of female factor infertility include ovulatory disorders, tubal blockage, utero-peritoneal factors like uterine synechia, uterine fibroid and endometriosis. The role of sexually transmitted infection in causing infertility is well established.

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Male factor can be assessed by seminal fluid analysis. Scrotal ultrasonography can be used to evaluate the scrotal volume. Testicular biopsy has a minimal role in the evaluation of male factor infertility.

Treatment options depend on the cause, age of the patient, financial consideration, facilities available and expertise. The major treatment for male factor is intrauterine insemination, tubal and male ejaculatory duct microsurgery and in-vitro fertilization and embryo transfer with or without intra-cytoplasmic sperm injection. However, the last option is very expensive and not readily accessible in developing countries. Adoption still remains a viable option for some couples.

Available evidence suggest that women suffer more socially and emotionally than men as male factor is not widely recognized as a cause of infertility in Africa¹. The woman is usually to seek help alone. Some infertile couples often consult spiritual homes, herbalists, traditional healers before going to hospital. This is because of perceived spiritual causes of infertility. When they finally present to orthodox practitioners, they tend to jump from one practitioner to another. Sometimes they go back to traditional healers because of the high cost of investigations and treatment for infertility.

The aim of this study is to determine the prevalence, identify the clinical patterns of male factor infertility in our environment.

MATERIALS AND METHOD

This is a descriptive retrospective study of patients that presented with infertility at Nnamdi Azikiwe University Teaching Hospital, Nnewi over a five year period between January 2005 to December 2009. Their folders were retrieved from the medical records department. These couples had been having regular and unprotected sexual intercourse for at least 1 year without achieving a desired pregnancy.

Two hundred and sixty-eight patients' folders were obtained from the out-patient register. Only 238 folders were available and retrieved. 30 folders were not seen while 34 folders had incomplete information. Information on the ages, highest educational status, occupation, alcohol and smoking history, duration of infertility, type of infertility, contribution of male factor, female factor or combinations, treatment and outcome were extracted and analysed using EPI INFO version 5.1 software.

Normal semen analysis was taken as a count of 20million per millilitre and above with >50% motility (active) and > 50% normal morphology. Risk factors for male infertility were extracted from the folders.

RESULTS

Within the study period, a total of 1449 patients were seen at the gynaecologic clinic. 268 came as a result of infertility giving an prevalence of 18.5%. Only 204 cases were used in analysis. The ages of the males ranged from 22 to 60 years, with a mean age of 39.1±6.0 years. While Majority [68%, n=138], had secondary education. There was no proper documentation of the males' occupation. Only 39% (n=71) took alcohol while 13(27%) took tobacco.

The mean duration of infertility was 5.0 years. Secondary infertility was commoner [59.0%,n=120] while primary infertility accounted for only 41.0%(n=84).

Female factors alone accounted for 45.0%(n=92) of infertility, while male factors alone accounted for 25.0%(n=52). Combined male and female factors accounted for only 20.0%(n=40) of the cases, while 10.0% (20) were unexplained. Oligospermia was the leading cause of male factor infertility [60.9%, n=56], followed by asthenozoospermia [17.4%, n=16] and azospermia was the least abnormality [13.0%, n=12]. The analytical tables are shown below

Table I: Socio-Demographic Characteristics [N = 204]

Variables	Number	Percentage
Age		
20-24	9	4.4
25-29	42	20.6
30-34	53	26.0
35-39	57	27.9
40-44	30	14.7
45-49	13	6.4
Highest Educational Qualification		
Primary	4	2.0%
Secondary	138	67.6%
Tertiary	62	30.4%
Duration of Infertility [in years]		
1	13	6.4%
2	52	22.5%
3	40	19.6%
4	40	19.6%
5	14	6.9%
6	8	3.9%
7	9	4.4%
8	15	7.4%
9	2	1.0%
10	7	3.4%
11	2	1.0%
12	2	1.0%

Table II: Types of Infertility [N=204]

Type	Frequency	Percentage
Primary	84	41.2%
Secondary	120	58.8%

Table 3: Contribution of male and female factors to infertility. [N=204]

Factor	Frequency	Percentage
Combined	40	19.6%
Female alone	92	45.1%
Male alone	52	25.5%
Unexplained	20	9.8%

Table 4: Abnormalities contributing to male factor infertility. [N=92]

Abnormality	Frequency	Percentage
Oligospermia	56	60.9
Asthenozoospermia	16	17.4
Teratozoospermia	8	8.7
Azospermia	12	13.0

Table 5: Risk factors of male infertility [N=132]

Abnormality	Frequency	Percentage
Tubal blockage	66	50.0%
Ovulatory disorders	40	30.3%
Uterine fibroid	16	12.1%
Uterine synechium	6	4.6%
Endometriosis	4	3.0%

DISCUSSION

The prevalence of infertility in this study was 18.5%. This is comparable to a prevalence of 21.2% from Ile-Ife⁸. It is higher than 16.7%⁹ and 12.2%¹⁰ reported from western Siberia and Abakaliki respectively. The prevalence of infertility has been found to be highly variable in sub-Saharan Africa.¹⁷ Data from western countries has put the incidence at 10 – 15%^{2,4,11}. The higher prevalence of infertility in sub-Saharan Africa has been attributed to sexually transmitted disease, post-abortal complications and puerperal sepsis^{1,7}.

The mean duration of infertility in this study was 5 years. This compares with a previous study at the same centre¹¹. It also compares with 4.9 years reported from Mongolia²². Jain noted that Africa-America experience longer duration of infertility before presentation than Caucasians¹³. This was said to correlate with the level of education and income. The mean age was 39.1±6.0 years which is in keeping with a mean age of 34 years from an earlier study by Ikechebelu et al¹¹. Highest educational attainment was secondary education. The social classes could not be ascertained because of inadequate documentation of partner's occupation. It has been shown that the social class affects the health seeking attitudes of infertile couples.

The commonest type of infertility was secondary, seen in 59% of cases. This compares with findings from several studies in sub-Saharan Africa^{3,6,14,15}. However, primary infertility has been found to be commoner in developed countries^{2,3,4,6}. This pattern seen in developing countries has been attributed to high prevalence of sexual transmitted infections and inadequate treatment of such infections, complications of unsafe abortion and puerperal sepsis^{3,6,15}. This is supported by the fact that tubal blockage was the commonest cause of female factor infertility in this study. Studies has also noted that tubal blockage was the commonest cause of female factor infertility in developing countries^{6,8,16}.

In Ile-Ife, oligospermia was the commonest sperm abnormality¹⁵. This was also reported by Ikechebelu et al in an earlier study in the same centre¹¹. This is in contrast with study from Ibadan where the commonest sperm abnormality was Asthenozoospermia¹⁷. Male

factor alone was responsible for infertility in 25% of cases, which compares well with 28.8% in Maiduguri¹⁶, 27% in Ibadan¹⁷, and 22% in Adelaide, Australia¹⁸. Both partners were responsible in 20% of cases and unexplained in 10% of cases. This agrees with study by Bayasgalen et al¹². Female factor alone was responsible for infertility in 45% of the cases. Idrisa et al reported a value of 31.3% in Maiduguri¹⁶

Infertility is a major public health problem with untold psychological disorders on the couple especially the women. Lack of access to information and treatment affects the health seeking behavior of these couples. Since most causes of infertility in sub-Saharan Africa is due to infection, emphasis should be on primary prevention by public health education on dangers of promiscuity as well as safer sex practices.

Prompt diagnosis of infection and adequate treatment will go a long way in preventing the dreaded sequelae of pelvic inflammatory disease including infertility. Availability and affordable assisted reproductive techniques will go a long way in providing succor to these couples.

There is need for public education on the contribution of male factor to infertility. This will reduce the burden of gender discrimination as regards infertility. It will also make the males to subject themselves for evaluation and treatment.

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