

The pattern of infertility cases at a University Hospital

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Summary

Pattern of infertility cases attending the gynaecologic out patient clinic of Ogun State University Teaching Hospital, Sagamu Nigeria is presented.

The incidence of infertility was found to be 14.8% with a mean duration of 3.38 ± 1.65 years. Secondary infertility predominated with 78.3% incidence. About three quarters (71.1%) were between 25 and 34 years of age and only 6.0% were below 25 years of age Nullipara constituted majority of cases with 56.6%. Past history of induced abortion was significantly present in those with tubal blockage. Male factor only was the cause in 26.8%, female factor only in 51.8% and both male and female factors were contributory in 21.4% cases. The male partners refused semen analysis in about one third of cases (32.5%).

Keywords: *Pattern, Infertility, Abortion, Male factor, Barrier contraception.*

Résumé

L'objet de cet étude est basé sur la tendance des cas qui allaient au dispensaire gynécologique du centre hospitalo universitaire de l'Etat d'Ogun, Sagamu, Nigeria. L'incidence de la stérilité trouvée d'être 14,8% avec la durée moyenne de $3,38 \pm 1,65$ ans. La stérilité secondaire prédominante avec l'incidence de 78,3%. Environ trois quart soit 71,1% étaient entre 25 et 34 ans et 6,0% seulement était de moins de 25 ans. Nullipara a constitué la plus grande partie des cas avec 56,6%. Dossiers médicaux du passé sur l'avortement provoqué était manifestement importants chez les patients atteints de l'obstruction tubale. Facteur de l'homme était seulement la cause en 26,8%.

Facteurs des femmes seulement en 51,8% et les deux facteurs étaient concourants en 21,4% des cas.

L'analyse du sperme refusé des hommes chez environ un tiers des cas soit 32,5%.

Introduction

One of the greatest desire of a couple is successful reproduction, especially in the developing countries. Most couples succeed in achieving pregnancy after one year of unprotected intercourse whilst the infertile couples are left in great psychosocial and physical distress.

The exact incidence of infertility in the general population is difficult to know especially as many patients with involuntary childlessness do not seek help from orthodox health care providers. However, a few studies have reported an incidence ranging from 10 - 15%.^{1,2} A community - based study by Templeton in Aberdeen found a prevalence of infertility within the general population of 14%³ and a similar study conducted in Kwara State of Nigeria recorded a prevalence rate of 30.3%.⁴

The causes of infertility varies from population to population and this is influenced by socio-cultural differences and by the degree of promiscuity, prevalence of sexually transmitted diseases and reproductive health behaviour; for example unsafe abortions and improper labour management have all been implicated in causation of infertility.

Worse still in most developing countries, the society often ignorantly attributes the factors responsible for infertility to women whereas infertility had been known to occur also as a result of a

male's reproductive disorders. Series of previous studies have shown that male contribution to infertility problem ranged between 21% and 53%.^{5,6,7}

Although, most investigations on this subject are hospital based, there are variations in the pattern of the occurrence from region to region.

Interestingly, in our environment, there is scarcity of data on the prevalence of infertility even in our institutions. It is for this reason that this study was conducted. The information obtained, we believe, shall be essential in organising an effective management pattern in our environment.

Materials and Methods

The case files of couples that presented with infertility at the Gynaecological out patient clinic in Ogun State University Teaching Hospital, Sagamu, Nigeria between January and December, 2000 were retrieved from the Medical Records Department. Only case files of adequately investigated couples were analysed. The parameters studied were age, parity, duration of infertility, history of previous induced abortion, results of tubal patency tests, results of ovulation tests and that of seminal fluid analysis.

The total numbers of gynaecological out patient clinic attendance and the patients with infertility were recorded.

Assessment of male factor was based on the mean of two sperm analysis results carried out at 4 - 6 weeks interval and the criteria used was that of the WHO as contained in the Manual on human sperm as follows:⁸

Satisfactory semen

Count $> 20 \times 10^6$ per ml

Motility $> 50\%$

Morphology $> 30\%$ normal forms.

Unsatisfactory:

Count $< 20 \times 10^6$ per ml

Motility $< 50\%$

Morphology $< 30\%$ normal forms.

Azoospermia:

No spermatozoon seen in the semen.

Tubal patency test was either by radiography (hysterosalpingography) or by laparoscopy and methylene blue dye tests.

Ovulation was assessed either by histological assessment of a mid-luteal phase endometrial biopsy or by a mid-luteal phase serum progesterone of 30mmol/l.⁹

The findings were analysed and subjected to statistical analysis where applicable using chi-squared analysis. Level of significance was set at $P < 0.05$.

Results

During the study period, there were one thousand and twelve (1012) total gynaecologic attendance out of which one hundred and fifty were infertility cases. This gave a prevalence of 14.8 per cent. Out of the 150, only eighty three (83), that is 55.3% could be reasonably investigated. The others absconded after the initial one or two visits and none or one test only carried out.

In those investigated, the mean duration of infertility was 3.38 ± 1.65 years. Twenty one point seven (21.7%) per cent were primarily infertile while 78.3% had secondary infertility. Almost three quarters (71.1%) were between 25 and 34 years of age; about one fifth (21.7%) were over 35 years and only 6% were teenagers and below 25 years of age.

* Correspondence

Out of the 83 couples, only 56 males carried out seminal fluid analysis. Among the 56 with the wife investigation results, male factor was solely the cause of the infertility in 15 (26.8%); female factor only in 29 (51.8%) and both male and female factors in 12 (21.4%) of cases.

Table 1 showed the parity distribution of the infertile patients. Nullipara were the largest group with 56.6% of the cases, followed by women of low parity (Para 1 & 2) with 35%. Women of high parity (Para 3 and more) constituted about 8.4% of cases.

Table 1 Parity distribution of infertile patients

| Parity | No of infertile patients | Percentage |
|--------------|--------------------------|--------------|
| 0 | 47 | 56.6 |
| 1 & 2 | 29 | 35.0 |
| 3 & 4 | 4 | 4.8 |
| 5 | 3 | 3.6 |
| Total | 83 | 100.0 |

Table 2 showed the findings of tubal patency tests. In 50.6% of cases, both fallopian tubes were patent; 19.3% had one tube blocked while there were bilateral tubal blockage in 30.1% of them.

Table 2 Findings of tubal patency test

| Result | Number | Percentage |
|--------------------------|-----------|--------------|
| Bilateral tubal blockage | 25 | 30.1 |
| Single tubal blockage | 16 | 19.3 |
| Bilateral tubal patency | 42 | 50.6 |
| Total | 83 | 100.0 |

In table 3, the relationship between infertile patients with tubal disease and previous history of induced abortion is depicted. Among forty one patients that had one or both history of induced abortion is depicted. Among forty one patients that had one or both tubes blocked, thirty four (34) of them had one or more induced abortions prior to presentation; and among the forty two that had both tubes patent, sixteen of them had one or more induced abortions previously. From the statistical analysis, history of previous induced abortion was found to significantly contribute to occurrence of tubal blockage ($P = 4.3908 X^2 < 0.05$).

Table 3 Relationship between infertile patient with tubal disease and previous history of induced abortion

| Result of tubal patency test | Number of patients | Patients with previous abortion |
|------------------------------|--------------------|---------------------------------|
| Tubal Blockage | 41 | 34 |
| Tubal patency | 42 | 16 |
| Total | 83 | 50 |

$P = 4.3908$
 $X^2 < 0.05$

Table 4 showed the result of ovulation tests. Forty two point one (42.1) percent were anovulatory, 1.2% had tuberculous endometritis and the rest 56.7% had ovulatory results.

Table 4 Ovulatory test results

| Result | Number | Percentage |
|--|-----------|--------------|
| Secretory endometrium/ midluteal serum progesterone > 30mmol/l | 47 | 56.6 |
| Proliferative endometrium/midluteal progesterone < 30mmol /l | 35 | 42.2 |
| Tuberculous endometrium | 1 | 1.2 |
| Total | 83 | 100.0 |

In table 5, the results of seminal fluid analysis were shown. Only 50 of the 83 males (67.5%) presented for the test. The rest 32.5% refused on the ground of recently impregnating their other

Table 5 Results of seminal fluid analysis

| Result | Number | Percentage |
|----------------|-----------|--------------|
| Satisfactory | 29 | 51.8 |
| Unsatisfactory | 22 | 39.33 |
| Azoospermia | 5 | 8.9 |
| Total | 56 | 100.0 |

wives or girl friends or simply that nothing was wrong with them. Of the 56 that had the test done, 51.8% had satisfactory semen result. Out of the 48.2% of the males that had unsatisfactory semen analysis, 8.9% were azoospermic.

Discussion

Infertility is defined as a couples' inability to conceive after one year of unprotected sexual exposure.¹ Few couples report to the hospital soon after marriage if they do not achieve pregnancy but most wait and try orthodox methods before presenting in the hospital.

The prevalence rate of 14.8% found in this study is similar to variously reported rates of about 15%.^{9,10}

In this study, the mean duration of infertility before presenting in hospital was 3.38 years; less than 5.8 years reported by **Marinho** from Ibadan in 1986 and 7.2 years by **Chigumazi** from South Africa in 1998.⁴ The difference might have reflected the realisation that the hospital could solve their problem rather than passively waiting for what will naturally happen.

Infertility is a disorder of couples. The man is the sole cause in about 30%, the female in about 40% and both are involved in about 30% of cases.¹⁰ From the study, the finding showed female preponderance with 51.8% most likely due to more prevalence of tubal disease from sexually transmitted diseases and complication of induced illegal abortion which are less common in the developed countries of United Kingdom and United States of America.

Secondary infertility was found to be more prevalent than primary variety. More than three quarters being of the secondary variety. This confirmed the findings of other workers.^{4,5,12,13} This would probably have been due to more chance of acquired diseases of the reproductive tract in both males and females than congenital anomalies or diseases acquired in early life causing secondary infertility in later life.

The age and parity distribution of infertile couples in this study are similar to the observations of other workers^{14,15} and reflect the type of patients attending the Gynaecological clinics. These were patients in the reproductive age group and mostly (90%) are of low parity who have not fulfilled their reproductive desires. The few women at the older age 35 years and above who were attempting to have children are likely to have included some of those who have failed to achieve their desired family size while younger.¹⁶

In a prospective WHO study (WHO Task Force on Sequelae of Abortion 1979), a cumulative life table type analysis showed no significant difference between two groups of women whose pregnancy concluded with either an induced abortion or a live baby.¹⁷

The findings in this study are contrary to this. Induced abortion significantly contributed to development of tubal blockage ($P = 4.3908 X^2 < 0.05$) and invariably to infertility in our own environment. This was not unexpected as induced abortion in our own environment is still attended by complications including sepsis with subsequent tubal and intrauterine diseases.

Male factor had been implicated in between 16 and 49% of infertility cases.^{15,18,19} In this review abnormal semen analysis was found in 48.2% of the male, similar to earlier reports. This is usually due to such causes as epididymo-orchitis from sexually transmitted diseases. Others include cryptorchidism, testicular torsion, varicocele and occlusion of the vas deferens.¹

About one third of the males refused to carry out the semen analysis. This was due to ignorance on their part and public en-

lightenment on the role of male factor would go a long way in achieving the co-operation of the male in the investigation of the couple.

Ovulatory disorders were found in 42.2% of cases. This was much higher than the 12% reported by **Marinho** from Ibadan.⁶ However, it was similar to the findings of **Philippov et al** from Western Siberia¹¹ who reported a prevalence of 32.8%.

The high incidence of anovulation found in this study might have been the effect of environmental and economic stress on the hypothalamic - pituitary - ovarian function culminating in anovulation.

The most common cause of infertility in this environment had been shown to be tubal diseases.^{6,20} In their study of tubal patency tests in Ibadan, **Onifade et al**²¹ found blockage of one or both tubes in 80% of cases.

Similar results were found from this study where about half of the women had blockage of one tube or both. Most of these tubal diseases would have resulted from infections either from sexually transmitted diseases or post abortion.

In conclusion, two of the major causes of infertility from this review are tubal diseases and male factor. Both are as a result of infection either from sexually transmitted diseases in both males and females; or post abortion in females.

References

1. Jones W R: Infertility in Dewhursts textbook of Obstetrics and Gynaecology for postgraduates, Fifth ed. Edited by Whitfield CR Blackwell science ltd., 1986; 551 - 561.
2. Baker H W G and Keogh E J: Update on male infertility in Recent advances in Obstetrics and Gynaecology Ed. John Bonnar; Churchill Livingstone 1994; No. 18: 109 - 125.
3. Templeton A, Fraser C and Thompson B: The epidemiology of infertility in Aberdeen. Br. Med J. 1999; 310: 148 - 152.
4. Adetoro O O and Ebomoyi E W: Prevalence of infertility in Rural Nigeria community; Afr. J. of Medical Sciences 1991; 20: 23 - 27.
5. Chiquamadzi P T, Moodley J and Bagratee J: Infertility profile at King Edward VIII Hospital, Durban, South African. Trop. Doct. Jul 1998; 28: 168 - 172.
6. Marinho A O: Aetiological factors in infertility; A review of 277 Nigeria infertile couples. West African Jour. Med. 1986; 5: 69 - 73.
7. Ajabor L N, Ezimokhai M and Kadiri A: Male contribution of subfertility in Benin City, Nigeria. Trop. Jour. Obs. & Gynae. 1981; 2: 53 - 56.
8. WHO: Laboratory manual for the Examination of human semen and sperm mucus interaction: 3rd Edition. Cambridge University Press. 1992.
9. Hull M G R, Savage P E and Bromham Dr *et al*: The value of a single progesterone measurement in the midluteal phase as a criterion of a potentially fertile cycle (ovulation) derived from treated and untreated cycles. Fertility sterility 1982a; 37: 355 - 360.
10. Cooke I D: Infertility: In Dewhursts textbook of obstetrics and gynaecology for postgraduate. 6th Ed. Edited by Edmonds D K Blackwell Science Ltd. 1999; 432 - 440.
11. Marshall J R: Infertility in current Obstetrics and Gynaecologic diagnosis and treatment. 6th Ed. Edited by Pernoll M L and Benson R C Appleton and Lange: 1987; 919 - 937.
12. Sunday J, Nboje R and Soruko S: Infertility in the Gambia. Soc. Sci. Med. 1998; 46: 7; 891 - 899.
13. Philippov O S, Radianchenko A A, Bolotova V P, Voronovskaya Potemkina T V: Estimation of the prevalence and causes of infertility in Western Siberia. Bull W H O 1998; 76: 2: 183 - 187.
14. Adetoro O O and Komolafe F: Hysterosalpingography and laparoscopy in infertility management. Trop Jour Obs. Gynae. 1990; 8: 2: 16 - 29.
15. Ladipo O A: Seminal analysis in fertile and infertile Nigerian men. J. Nat. Med. Assoc. 1980; 72: 785 - 789.
16. Howe G, Westhoff C, Vessey M and Yeates D: Effects of age, cigarette smoking and other factors on fertility findings in a large prospective study. Brit. Med. J. 1985; 290: 1697 - 1700.
17. WHO task force on Sequelae of abortion: Secondary infertility following induced abortion. Studies Fam. Plan. 1984; 15: 291 - 295.
18. Ojo O A: Male factor in infertile marriages in Nigeria. West Afr. Med. Jour. 1968; 18: 210 - 211.
19. Chukwudebelu W O, Ezege N and Magafu U: Aetiological factors in infertility in Enugu. Infertility 1979; 2: 193 - 200.
20. Giwa Osagie P F, Ogunyemi D, Emuveyan E E and Akinola O A: Aetiologic classification and sociomedical characteristics of infertility in 250 couples. Int. J. Fertility 1984; 29: 104 - 108.
21. Onifade A, Adclusi B and Kolawole T M: Tubal patency in infertility in Ibadan, Nigeria Trop. Journ. Obs. Gynae. 1989; 7: 1921.