EPIDEMIOLOGY OF INFERTILTY IN KANO, NORTH-WEST NIGERIA

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ABSTRACT

INTRODUCTION: Infertility is a global problem with the highest prevalence in sub-Saharan Africa. Despite the high prevalence it has been a relatively neglected problem, overshadowed by seemingly greater concerns such as maternal mortality.

OBJECTIVES: The aim of this study is to identify the prevalence, clinical pattern and causes of infertility among gynaecological patients in Aminu Kano Teaching Hospital.

METHODOLOGY: It was a retrospective study of infertile patients who presented at the gynaecology clinic of Aminu Kano Teaching Hospital, between 1st January 2016 and 31st December 2017.

RESULTS: The prevalence of infertility was 16%. The ages of the patients ranged from 18 to 46 years, with a mean age of 28.72+6.0 years. The mean duration of infertility was 5.97 ± 4.19 years with maximum duration of 28 years. Majority of the patients had secondary infertility (53%) while 47% had primary infertility. Female factors accounted for 44.6% of the infertility, while male factors accounted for 23%. Among the female causes of infertility tubal factors accounted for 46%, ovulatory factors accounted for 41% while uterine factors accounted for 13%.

CONCLUSION: Prompt diagnosis of infection and adequate treatment will go a long way in preventing the dreaded sequelae of infertility.

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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]. It can be primary or secondary; primary infertility applies to those who have never conceived, whereas secondary infertility designates those who have conceived at some time in the past[1,2]. It can also be due to either partner or both; an aetiology for infertility can be found in 80% of cases with an even distribution of male and female factors, including couples with multiple factors[1,2]. A primary diagnosis of male factor is made in approximately 25% of cases[2]. Ovulatory dysfunction and tubal/peritoneal factors comprise the majority of female factor infertility. In 15–20% of infertile couples, the etiology cannot be found and a diagnosis of unexplained infertility is made[2].

Infertility is a global problem, but the highest prevalence is in low resource countries, particularly sub-Saharan Africa where infection-related tubal damage is the commonest cause[3]. Despite the high prevalence in Africa infertility has been a relatively neglected problem for many years, overshadowed by seemingly greater concerns such as high fertility rates, maternal mortality, sexually transmitted diseases and genital tract malignancies[4]. Infertility has adverse social and psychological implications, especially for women in developing countries. Even when the man is at fault, in many cases, the childless woman is made to feel inferior and may be abused or even tortured by the family[3]. Women suffer more socially and emotionally than men as male factor is not widely recognized as a cause of infertility in Africa1. The women usually seek help alone, they often consult spiritual homes, herbalists,

traditional healers before going to hospital. When they finally present to the hospital, 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[5]. These are among the factors that made it difficult to determine the exact prevalence and clinical pattern of infertility in Sub Saharan Africa.

Data from population-based studies suggest that 10–15% of couples in the Western world experience infertility[6]. In Sub- Sahara Africa the prevalence of infertility has been noted to be highly variable ranging from 20 - 46%[1]. This has been attributed to high rate of sexually transmitted diseases, complications of unsafe abortion and puerperal pelvic infections[1]. Hospital-based prevalence of infertility reported in some parts of Nigeria are 15.7% from Sokoto[7] (North west), 23.9% from Bauchi[8] (North East), 4.0% from Ilorin[9] (North central), 15.4% in Abakaliki[10] (South east), 48.1% in Oshogbo(South west)[11] and 34 per 1000 in Calabar[12] (South South).

There is paucity of data on the epidemiology of infertility in Aminu Kano Teaching hospital, hence the need for the study to fill the existing knowledge gap. The aim of this study is therefore to identify the prevalence, clinical pattern and causes of infertility among gynaecological patients in Aminu Kano Teaching Hospital.

METHODOLOGY

This was a retrospective study conducted at the gynecology clinic of Aminu Kano Teaching Hospital, Kano. Participants in the study included women who attended the gynaecology clinic over a 2 year period, from 1st January 2016 to 31st December 2017, with history of inability to achieve conception of at least 1 year duration despite regular and unprotected sexual intercourse. Their folders were retrieved from the medical record department of the hospital and a proforma was used.

All the patients who had full history, physical examination and complete investigations were included in the study. Their weights and heights were used for calculating the body mass index (BMI). BMI was classified according to World Health Organization classification. All the patients who had a pelvic ultrasound scan, seminal fluid analysis, and hysterosalpingography (HSG) were included in the study. Women with menstrual irregularities and/or other features of anovulation who were further investigated with measurement of hormone levels were also included. Only female patients with full investigations and male partners that did seminal fluid analysis were included in the study analysis.

The relevant clinical findings and results of investigations were documented using a proforma. Information on the ages, educational status, duration of infertility, type of infertility, contribution of male factor, female factor or combinations were extracted from the proforma and analyzed using SPSS version11.

RESULTS

The total number of new gynecological cases during the study period was 1,715. Out of these, 318 folders were retrieved with a diagnosis of infertility, but only 278 were analyzed, 13 folders had incomplete information while 27 had incomplete investigations.

The sociodemographic characteristics of the patients are shown in table 1. The ages of the patients ranged from 18 to 46 years, with a mean age of 28.72+6.0 years. Majority (51.1%, n=142) had secondary education. The duration of infertility in most of the patients (57.6%, n=160) ranges between 1 and 5 years. The mean duration of infertility was 5.97 ± 4.19 years with maximum duration of 28 years.

Table 2 shows the obstetrics history of the patients; majority were nulliparous (55.4%, n=154) and the mean parity was 0.74 + 1.10. The maximum number of living children was 5, although majority of the patients had no living children (64.4%, n=179).

Table 3 shows the clinical features of the patients. Majority present with vaginal discharge (51.1%,), irregular menstruation (36%) and chronic lower abdominal pain (

29.1%). The common examination findings (Table 4) include abnormal BMI found in 45% of the patients. Those who are overweight accounted for 28.4%, 14% were obese while 2.5% were underweight. Other findings include hirsutism (12.9%), abnormal vaginal discharge (6.5%), abdominal swelling (5.4%) and galactorrhoea (4.3%).

Majority of the patients had secondary infertility (53%) while 47% had primary infertility (Figure 1). Following analysis of investigation results female factors alone accounted for 44.6% of the infertility, while male factors alone accounted for 23%. Combined male and female factors accounted for 18.3% of the cases, while 14% were unexplained (Figure 2). Among the female causes of infertility tubal factors accounted for 46%, ovulatory factors accounted for 41% while uterine factors accounted for 13%. (Figure 3)

DISCUSSION

The prevalence of infertility in this study was 16%. This prevalence is similar to the prevalence of 15.7% from Sokoto[7] (Northwest Nigeria) but lower than 23.9% from Bauchi8 (Northeast) and 48.1% in Oshogbo (South west)[11]. The higher prevalence in Southern Nigeria may probably be due to the higher health-seeking behavior of the populations. However in general the prevalence of infertility has been found to be highly variable in sub-Sahara Africa[1].

The highest incidence of infertility in this study occurs between the ages of 21 to 30 years. This is likely to be as result of high childbearing at relatively young age group among women in Northern Nigeria. The sexual activity at this age group predisposes the women to sexually transmitted infections which has been found to be one of the most common causes of infertility in sub-Saharan

TABLE 1: SOCIODEMOGRAPHIC CHARACTERISTICS

AGE GROUP	FREQUENCY	PERCENTAGE
18-20	9	3.2
21-25	97	34.9
26-30	98	35.3
31-35	22	7.9
36-40	38	13.7
41-45	9	3.2
>45	5	1.8
Total	278	100.0
EDUCATION	**FREQUENCY**	**PERCENTAGE**
None	8	2.9
Primary	39	14.0
Secondary	142	51.1
Tertiary	81	29.1
Quranic	8	2.9
Total	278	100.0
DURATION	**FREQUENCY**	**PERCENTAGE**
1-5	160	57.6
6-10	99	35.6
>10	19	6.8
TOTAL	278	100.0

TABLE 2: OBSTETRIC HISTORY

PARITY	FREQUENCY	PERCENTAGE
0	154	55.4
1	82	29.5
2	23	8.3
3	5	1.8
4	8	2.9
5	6	2.2
ABORTIONS	**FREQUENCY**	**PERCENTAGE**
0	235	84.5
1	20	7.2
2	12	4.3
≥ 3	11	4.0
CHILDREN	**FREQUENCY**	**PERCENTAGE**
0	179	64.4
1	67	24.1
2	26	9.4
3	2	.7
4	3	1.1
5	1	.4
Total	278	100.0

TABLE 3 : CLINICAL SYMPTOMS

AGE GROUP	FREQUENCY	PERCENTAGE
Vaginal discharge	**142**	**51.1**
Dyspareunia	**78**	**28.1**
Dysmenorrhea	**21**	**7.6**
Chronic lower abdominal pain	**81**	**29.1**
Inadequate coital exposure	**24**	**8.6**
Irregular menstruation	**100**	**36**
Amenorrhea	**18**	**6.5**
Abnormal hair growth	**51**	**18.3**
Galactorrhoea	**27**	**9.7**
Previous abdomino-pelvic surgery	**33**	**11.9**
Previous history of MVA	**29**	**10.4**
Previous history of contraceptive usage	**7**	**2.5**
Previous infertility investigations	**53**	**19.1**
Previous infertility treatment	**27**	**9.7**

TABLE 4 : CLINICAL SIGNS

SIGNS	FREQUENCY	PERCENTAGE
BMI < 18.5	7	2.5
BMI 18.5-24.9	153	55.0
BMI 25.0- 29.9	79	28.4
BMI ≥30	39	14.0
TOTAL	**278**	**100.0**
Hirsutism	36	12.9
Galactorrhoea	12	4.3
Abdominal swelling	15	5.4
Abdominal tenderness	9	3.2
Adnexal tenderness	3	1.1
CET	15	5.4
Vaginal discharge	18	6.5
Others	3	1.1

FIGURE 1: TYPE OF INFERTILITY

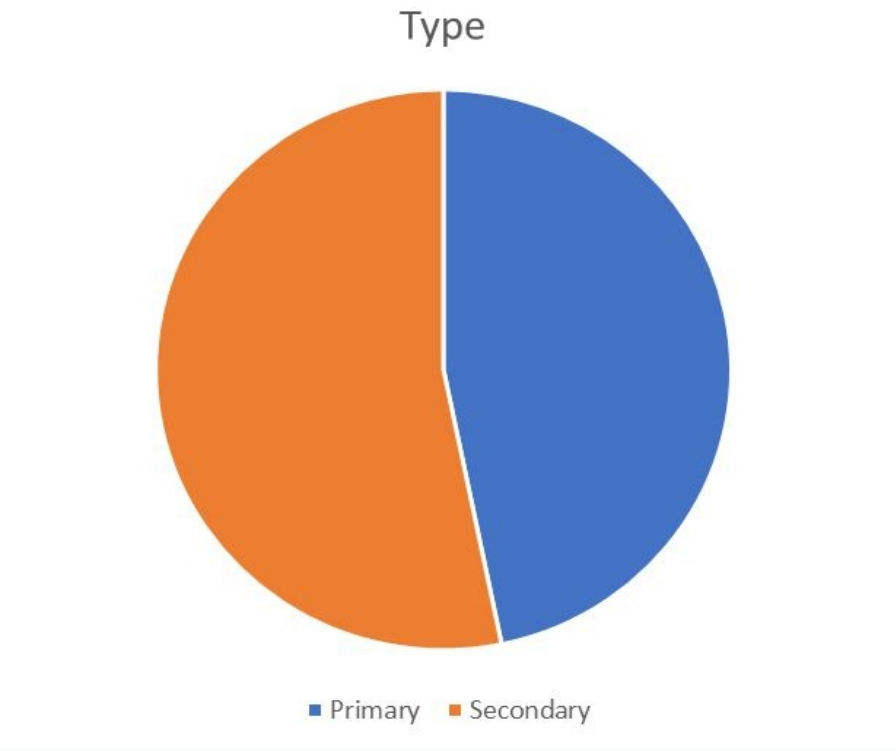


FIGURE 2: CONTRIBUTION OF PARTNERS

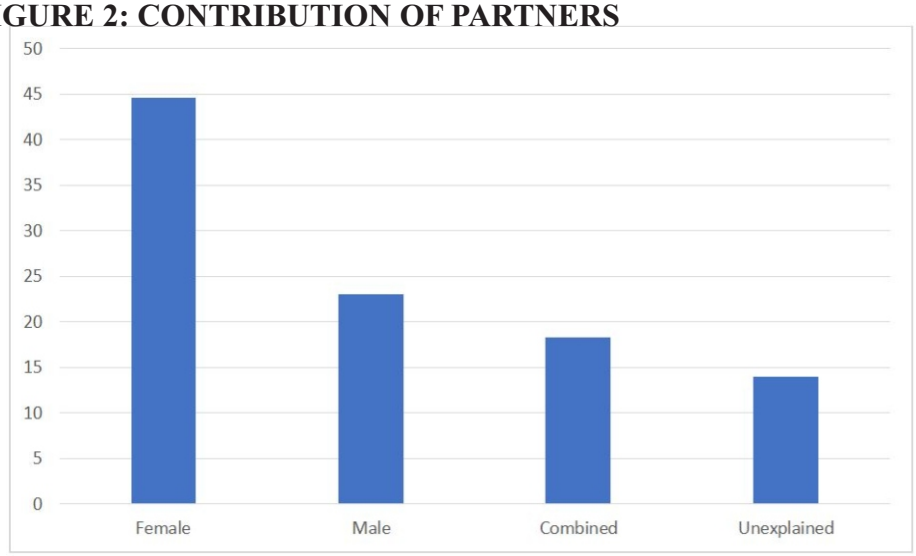
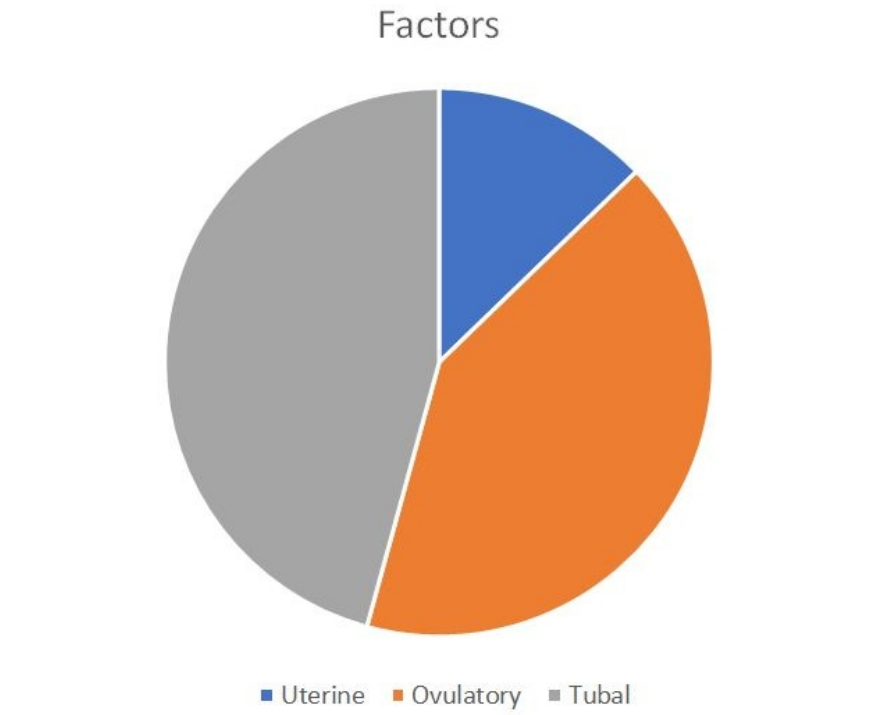


FIGURE 3: FEMALE FACTORS OF INFERTILITY



Africa. This finding is similar to findings in other parts of Nigeria and Africa[7-9]. Unlike in developed countries where age of marriage is at a relatively older age group[15,16,18].

The mean duration of infertility in this study was 5.97 ± 4.19 years. . It compares with 5 years reported from Sokoto and Calabar[7,12]. The late presentation in this study as in other similar studies may be due to poor knowledge of infertility, unavailability and/or inaccessibility of appropriate services, prior unsuccessful medical interventions, and previous visits to traditional healers[7,14].

In this study secondary infertility has also been found to be more prevalent (53%) than primary infertility (47%). This is similar with findings from several other studies in sub-Saharan Africa[2,5,7,13]. However, primary

infertility has been found to be commoner in western countries[1,2]. The high prevalence of secondary infertility in developing countries has been attributed to high prevalence of sexually transmitted infections and inadequate treatment of such infections, complications of unsafe abortion and puerperal sepsis[1,2]. The clinical presentations in the patients in this study are also suggestive of infections; the commonest features include previous vaginal discharge, chronic lower abdominal pain, and dyspareunia. This is similar to the findings in a lot of other studies in Nigeria and sub-Saharan Africa[7-14].

Female factor alone was responsible for infertility in 44.6% of the cases. This is similar to the findings in Sokoto (42.9%)[7] and other centres in Nigeria[14,17]. Male factor alone was responsible for infertility in 23% of cases, which compares well with 19.7% in Sokoto[7] and other parts of Nigeria. Both partners were responsible in 18.3% of cases and unexplained in 14% of cases.

Tubal blockage was the commonest cause of female factor infertility in this study. Similar studies have also noted that tubal blockage was the commonest cause of female factor infertility in developing countries[7-14]. This further confirms the findings that infection is the commonest cause of infertility in Nigeria.

CONCLUSION

Infertility is one of the commonest presenting complaints among gynaecological patients in Nigeria. Since most of the causes of infertility in the study population is due to infection; prompt diagnosis of infection and adequate treatment will go a long way in preventing the dreaded sequelae of infertility. Emphasis should also be on primary prevention by health education on safer sex practices.

Availability and affordability of assisted reproductive techniques in public hospitals will go a long way in providing solution to these couples as it is the effective option of treatment for the commonest cause of infertility in the study area.

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