

Clinical Correlates of Unexplained Infertility in Southeastern Nigeria.

Joseph I. Ikechebelu¹, J.I. Brian-D Adinma¹, Sylvester G. Ikegwuonu² and Emeka F. Orié¹.

Department of Obstetrics and Gynaecology, ¹Nnamdi Azikiwe University Teaching Hospital, P.M.B. 5025, Nnewi, Nigeria and ²Silgrey Royal Hospital, Awka, Nigeria.

Abstract:

Context: In the absence of any obvious aetiological factor, a couple is said to have unexplained infertility. It is desirable to identify factors associated with unexplained infertility in this environment and to ascertain if there is a causal relationship between infertility and uterine leiomyomata.

Objective: The study is aimed at identifying clinical factors associated with unexplained infertility and determining if there is any difference in the prevalence of uterine fibroids between women for whom a cause of infertility is identifiable and those with unexplained infertility.

Study Methods: The records of infertility patients from our clinics at Nnewi and Awka were examined for the identifiable causes of infertility and the presence of uterine fibroids.

Results: The cause of infertility was obvious in 279 (89%) of the 314 couples that completed their evaluation while 35 couples (11%) had unexplained infertility. The type of infertility (primary or secondary) had no influence on whether the aetiology is identified or not. However, increasing parity and duration of infertility is significantly associated with an identifiable aetiology. Uterine leiomyomata were present in 61 (19%) of the 314 infertile women studied. Fifty (18%) of the women who had an identifiable cause for their infertility had fibroids compared to 11 (31%) of the women with unexplained infertility ($P < 0.005$).

Conclusion: Unexplained infertility is less common with increasing parity and duration of infertility. Uterine fibroids are more common in women with unexplained infertility. Myomectomy in these women may offer a greater chance of achieving conception.

Key Words: Infertility, Uterine Leiomyomata, Myomectomy. [Trop J Obstet Gynaecol, 2002, 19: 8-11].

Introduction

Infertility is an important problem in the African society and indeed worldwide. At least one in every ten couples of reproductive age has infertility^{1,2}. Reproductive failure has very far-reaching social implications in Nigeria where the main reason for marriage is to have children irrespective of whether or not the couple is in love³. Male factors like azoospermia, oligozoospermia, asthenozoospermia and teratozoospermia as well as female factors like tubal occlusion, ovulatory dysfunction, uterine non-receptivity, cervical factors and endometriosis are established causes of infertility. A couple is said to have unexplained infertility in the absence of any obvious aetiological factor after full evaluation⁴. Uterine leiomyoma is the commonest tumour of the female genital tract. It occurs in 20 to 40% of women and is more common in Negroes than Caucasians⁵. Its exact relationship with infertility is difficult to establish. Buttram and Reiter found a causal relationship in only 2.6% of their patients⁶. However, it is known that uterine leiomyomata may cause tubal

occlusion, distort the uterine cavity or cause inflammatory and vascular changes in the endometrium and the underlying stroma^{7,8}, all of which can contribute to infertility. Failure of implantation due to delay in the appearance of normal immuno-histochemical markers of uterine receptivity in women with uterine leiomyomata has also been suggested as a cause of infertility⁹.

The aim of this study is to identify the prevalence of uterine leiomyomata in women with infertility and compare the difference if any between those with explained and those with unexplained infertility. It also seeks to establish the relationship if any between unexplained infertility and the type and duration of infertility as well as the parity of the women.

Correspondence: Dr. J.I. Ikechebelu, Department of Obstetrics and Gynaecology, College of Health Sciences, Nnamdi Azikiwe University, P.M.B. 5001, Nnewi, Nigeria.

Materials and Methods

The records of 431 infertile couples investigated in our gynaecological clinics at Nnamdi Azikiwe University Teaching Hospital, Nnewi and 2 private hospitals (Silgrey Royal Hospital, Awka and Apex Medical Centre, Igboekwu) in Anambra State Nigeria, between January 1997 and April 1998 were analysed. 117 couples that failed to complete their investigations were excluded from the study. The records of the remaining 314 couples who completed their investigations were reviewed.

Diagnosis of infertility was based on the history and investigations were performed to determine the aetiology. Uterine leiomyomata was diagnosed on bimanual vaginal examination and subsequently confirmed at ultrasonography or laparoscopy, as indicated. Ovulation was assessed by ultrasonography or premenstrual endometrial biopsy. Tubal and peritoneal factors including endometriosis were assessed by laparoscopy and chromotubation. Hysterosalpingography was performed instead of laparoscopy in 12 women with uterine leiomyomata greater than 14 weeks size. Hormone profile was done for women with galactorrhoea and ovulatory problems. Other investigations performed were microscopy & culture of vaginal swabs, Venereal Disease Research Laboratory (VDRL) test, and screening for HIV 1 & 2.

Data on the causes of infertility and the presence or absence of uterine leiomyomata were extracted. The type and duration of infertility and the parity of the women were also studied in relation to the aetiology of the infertility. Chi square statistical analysis was employed as a test of association between the factors.

Results

Of the 314 couples, 133 (42.4%) had only male factors as the cause of their infertility, 81 (25.8%) had only female factors, while 65 (20.7%) had both male and female factors. In the remaining 35 (11.1%) couples, no discernible factor was found - unexplained infertility. Table 1 shows that uterine leiomyomata was present in 61 (19.4%) of the women studied. Of these, 50 women were in the group with an identified aetiological factor (17.9% of that group), while the remaining 11 women had unexplained infertility (31.4% of their group). This difference is significant ($P < 0.005$). Primary infertility was present in 216 (68.8%) couples and secondary infertility in 98 (31.2%). Among those with 'explained' infertility, 195 (69.9%) had primary infertility while 84 (30.1%) had secondary infertility. The corresponding figures for those with 'unexplained' infertility were 21 (60%) and 14 (40%) respectively

Table 1

Prevalence of Leiomyomata in Infertile Women

Uterine Leiomyoma	Cause of Infertility		Total
	'Explained'	'Unexplained'	
Present	50 (17.9%)	11 (31.4%)	61 (19.4%)
Absent	229 (82.1%)	24 (68.6%)	253 (80.6%)
Total	279 (100%)	35 (100%)	314 (100%)

Table 2

Parity and Cause of Infertility

Parity	Cause of Infertility		Total
	'Explained'	'Unexplained'	
0	195 (69.9%)	21 (60.0%)	216 (69%)
1	46 (16.5%)	8 (22.9%)	54 (17%)
2	19 (6.8%)	6 (17.1%)	25 (8%)
3 or more	19 (6.8%)	0 (0%)	19 (6%)
Total	279 (100%)	35 (100%)	314 (100%)

Tables 2 and 3 show the parity distribution of the women and the duration of their infertility. There was no case of unexplained infertility in those with parity of 3 and above. With a duration of only one year, more couples (20.0% vs. 13.6%) had unexplained infertility than those with an identifiable cause. However, after 8 years of infertility, a lower number (8.6% vs. 17.9%) had unexplained infertility. The difference is significant ($p < 0.005$).

Table 3

Duration and Cause of Infertility

Duration of Infertility (Years)	Cause of Infertility		Total
	'Explained'	'Unexplained'	
1	38 (13.6%)	7 (20.0%)	45 (14.3%)
2 - 7	191 (68.5%)	25 (71.4%)	216 (68.8%)
8 or more	50 (17.9%)	3 (8.6%)	53 (16.9%)
Total	279 (100%)	35 (100%)	314 (100%)

Discussion

Unexplained infertility was found in 11.1% of the couples studied. This agrees with the findings of other workers^{10,11}. The scope of unexplained infertility no doubt depends on the diagnostic facilities available at a centre. The primary aetiological factors in infertility (male, tubal & ovulatory factors) were fully evaluated in our patients. The secondary factors were not fully assessed, especially immunological factors because the facilities were not available in our centres.

The prevalence rate of 19.4% for uterine leiomyomata in infertile women in this study is higher than 9.8% reported from Europe¹², but people of African descent are generally known to have a higher prevalence of the condition⁵. Uterine leiomyomata were significantly more prevalent in women with unexplained infertility when compared with infertile women with an identifiable aetiological factor. It does appear, therefore, that in the absence of childbearing and a definite cause of infertility, the chances of a woman developing uterine leiomyomata is significantly increased. Several workers have sought to explain the association between uterine leiomyomata and unexplained infertility as being due to prevention of implantation^{8,9}. This is further supported by the high pregnancy rate associated with myomectomy (abdominal and laparoscopic) in women with unexplained infertility and uterine leiomyomata^{13,14,15}. A low pregnancy rate following myomectomy was reported in Enugu, Nigeria and this was attributed to the high incidence of associated pelvic inflammatory disease¹⁶.

In couples with primary infertility, there was no significant difference in the prevalence rates for

explained and unexplained infertility although, in general, unexplained infertility was more commonly associated with primary infertility (60%) than with secondary infertility (40%). Furthermore, in couples with secondary infertility, unexplained infertility was absent after the parity of 2. The preponderance of identifiable aetiological factor in infertile women beyond Para 2 could be attributed to the increased likelihood of sepsis and pelvic adhesions with repeated deliveries, especially in developing countries where a minor proportion of births is supervised or attended by medical and nursing personnel.

Unexplained infertility was observed to be most prevalent among couples presenting for evaluation after the first year in contradistinction to couples presenting after seven years infertility where the incidence was found to be significantly much lower. Similarly the incidence of "explained" infertility was much higher the longer the duration of infertility. Lenton *et al* reported an increase in cumulative pregnancy rate from 36.4% after 4 years of unexplained infertility to 78.8% at the end of seven years¹⁷. Many of these couples, can be classified as subfertile rather than infertile, knowing that treatment-independent pregnancies may occur in up to 60% of affected couples¹⁸.

In conclusion, unexplained infertility is less common with increasing parity and duration of infertility. Uterine leiomyoma is more common in women with unexplained infertility. Myomectomy in these women may be beneficial in assisting them to achieve conception.

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