

Role Of Laparo Endoscopic Surgeries In Patients Undergoing Assisted Reproductive Technology Treatment In Ilorin, Nigeria.

#*^Jimoh AAG, *^Omokanye L.O, ^Biliaminu SA, *Balogun OR, *Saidu R,
*Raji HA, *Ijaiya M, *Ezeoke G, *Olarinoye O, #Dare J, *Okesina S.

#Midland Fertility Centre, Adewole Estate . Ilorin

*Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital, Ilorin

^Assisted Reproductive Technique Unit, UITH. Ilorin

Abstract:

Background: The availability of Assisted Reproductive Technology (ART) has reduced the need for reproductive surgery as a primary surgical treatment for infertility.

Objective: To determine whether laparo-endoscopic procedures has a place in the management of patients being evaluated for ART.

Materials and Methods: A retrospective evaluation of all endoscopic procedures done at the Midland Fertility Centre, Ilorin, Nigeria for women undergoing IVF and related procedures between Jan 2008-Dec 2010. . Patients were further grouped into two using 35years age as a cut off. Analysis was done using simple percentages. Test of significance was calculated using chi square test and the p value was set at $p < 0.05$.

Results: Of the 625 patients recruited during the study period for ART, 148 (23.7%) had endoscopic procedures. Their ages ranged from 22 to 57 years with a mean age and standard deviation (SD) 33.5 ± 6.2 years. More than half (51.4%) were 35years and above. Majority (68.9%) were nulliparous. More than half (56.8%) had their endoscopic surgeries prior to ART procedures. Laparoscopic tubal disconnection, ovarian drilling, hysteroscopic adhesiolysis and metroplasty were commoner among women who were below 35years ($p < 0.005$). Similarly, laparoscopic myomectomy, endometriotic ablation/ cyst drainage, hysteroscopic myomectomy, and polypectomy were commoner among women who were 35years and above ($p < 0.005$).

Conclusion: Endoscopic procedures though should not be routine for patients undergoing Assisted Reproductive Technology pre evaluation of infertile patients in suspected cases will improve clinical pregnancy rate. Thus the need for patient selection for endoscopy procedure prior to Assisted Reproductive Technology to increase success rate.

Introduction

Infertility is a global phenomenon occurring in approximately 10% of couple's globally.¹ It is estimated that worldwide, between 70 and 80 million couples suffer from infertility, and most of these are residents of developing countries, including the Middle East. Infertility occurs in about 15%-35% of couples in Nigeria; there are inter zonal differences in the incidence of infertility in Nigeria.² Over 60% of gynaecological consultations are infertility related.² Up to 10-15% of infertile patients will end up requiring the services of assisted reproductive technology.

Recent advances in endoscopic surgical techniques and the increased sophistication of surgical instruments have offered new operative methods and techniques for the gynecologic surgeon.³

Recent years have witnessed a marked increase in the number of gynecological endoscopic procedures performed, mainly as a result of technological improvements in instrumentation. The addition of a small video camera to the laparoscope (videolaparoscopy) greatly enhanced the popularity of operative endoscopy because of the possibility of operating in a comfortable, upright position and using the magnification capabilities of the camera.^{4,5}

Laparoscopy has become an integral part of gynecologic surgery for the diagnosis and treatment of abdominal and pelvic disorders of the female reproductive organs.³ Endoscopic reproductive surgery intended to improve fertility may include surgery on the uterus, ovaries, pelvic peritoneum, and the Fallopian tubes. When fertility surgery is indicated, operative laparo-endoscopy results in better outcomes as it is associated with reduced adhesion formation and morbidities.⁶

Gynaecological endoscopic surgeries such as laparoscopy, hysteroscopy etc are often required in these groups of patients undergoing ART. Others such as falposcopy, vaginoscopy, colposcopy are rarely needed. The aim of this study is to ascertain the role of laparo-endoscopic surgeries in the management of patients undergoing ART treatment.

Materials and Methods

A retrospective study of all endoscopic procedures done at the Midland Fertility Centre, Ilorin, Nigeria for women undergoing IVF and related procedures between Jan

Correspondence:

Prof. AAG Jimoh

Department of Obstetrics and Gynaecology,
University of Ilorin, Kwara state.

Phone no; +2348037252959

E-mail address: jimohaag@yahoo.com

2008-Dec 2010.

Data were extracted from case records regarding the age, parity, occupation as well as type of endoscopic surgeries. Special note was made as to whether these procedures were done pre/post ART procedures. Patients were further grouped into two using 35years age as a cut off. Analysis was done using simple percentages. Test of significance was calculated using chi square test and the p value was set at $p < 0.05$.

Results

Of 625 patients recruited for ART during the study period 148(23.7%) had endoscopic surgeries. Their ages ranged

from 22 to 57 years with a mean and standard deviation (SD) of 33.45 ± 6.2 years. The modal age group was 35-39 years. More than half (51.4%) were 35years and above (table1). Their parity ranged from 0 to 2. Majority 102 (68.92%) were nulliparous (table 2). Most 72(48.65%) are traders while few 8 (5.41%) are professionals.

Most 84 (56.76%) had their endoscopic surgeries prior to ART procedures while 64 (43.24%) had endoscopic surgeries after ART procedures (Table III). Twenty eight cases of tubal disconnection 28 (28.8%) followed by 13 cases of laparoscopic adhesiolysis (13.4%) and 11 cases of hysteroscopic polypectomy (11.3%) were the common

Table 1: Age distribution of patients undergoing ART

Age	Nos	%
<25	2	1.35
25-29	31	20.95
30-34	39	26.35
35-39	48	32.43
40-44	23	15.54
>45	5	3.38
Total	148	100

Table 2: Parity distribution of patients undergoing ART

Parity	Nos	%
Nulliparous	102	68.92
1	39	26.35
2	7	4.73
Total	148	100

Table 3: Timing of endoscopic procedures and ART

Procedure	Pre IVF	%	Post IVF	%	Total	%
laparoscopy						
Adhesiolysis	13	13.4	0	0	13	8.78
Tubal Disconnection	28	28.8	0	0	28	18.9
Myomectomy	10	10.3	2	3.9	12	8.1
Post OHSS	8	8.25	16	31.3	24	16.2
Endometriotic lesion	6	6.1	0	0	6	4.1
Hysteroscopy						
Adhesiolysis	13	13.4	18	18.5	31	20.9
Myomectomy	5	5.15	5	9.8	10	6.8
Polypectomy	11	11.3	8	15.6	19	12.8
Metroplasty	1	1.0	0	0	1	0.7
Cystoscopy	1	1.0	2	3.9	3	2.0
Total	97	100	51	100	148	100

Table 4: Patients' age and Timing of ART procedures

Age	PRE IVF	%	POST IVF	%	TOTAL	%
<25	2	2.4	-	0	2	1.4
25-29	26	30.9	5	7.8	31	20.9
30-34	27	32.1	12	18.8	39	26.4
35-39	18	21.4	30	46.9	48	32.4
40-44	7	8.3	16	2.5	23	15.5
>45	4	4.8	1	1.6	5	3.4
Total	84	56.76%	64	43.24%	148	100

Table 5: Relationship between patient age and endoscopic surgeries.

Procedure	Age Group													
	<25	%	25-29	%	30-34	%	35-39	%	40-45	%	>45	%	Total	%
Laparoscopy														
Adhesiolysis	0	0	8	25.8	2	5.1	1	2.1	1	4.3	1	0	13	8.8
Tubal disconnection	1	50	12	38.7	8	20.5	5	10.4	2	8.7	0	0	28	18.9
Myomectomy	0	0	0	0	2	5.1	4	8.3	4	17.4	2	50	12	8.1
Post OHSS	0	0	2	6.5	18	46.2	2	4.2	2	8.7	0	0	24	16.2
Endometriotic	0	0	0	0	1	2.6	3	6.3	2	8.7	0	0	6	4.1
Hysteroscopy														
Adhesiolysis	1	50	8	25.8	15	38.5	2	10.4	5	21.7	0	0	31	20.9
Myomectomy	0	0	0	0	1	2.6	4	6.3	3	13.0	2	50	10	6.8
Polypectomy	0	0	0	0	1	2.6	15	31.3	3	13.0	0	0	19	12.8
Metroplasty	0	0	1	3.2	0	0	0	0	0	0	0	0	1	0.7
Cystocopy	0	0	0	0	1	2.6	1	2.1	1	4.3	0	0	3	2.0
Total	2	100	31	100	39	100	48	100	23	100	5	100	148	100

endoscopic surgeries done prior to ART procedures while hysteroscopic adhesiolysis 18 (18.5%) and laparoscopic ovarian drilling were the common endoscopic surgeries done after ART procedures (table 4).

Table V showed the relationship between endoscopic procedures and patient age. Laparoscopic tubal disconnection 21(75%) and ovarian drilling 20 (83.33%) were the common endoscopic surgeries done among patients who are below 35 years prior to ART procedures. Laparoscopic myomectomy (83.33%) and laparoscopic endometriotic ablation/cyst drainage were commoner among patients who are 35 years and above ($p < 0.05$). Similarly, hysteroscopic adhesiolysis and metroplasty were commoner among patients who are below 35 years whilst hysteroscopic myomectomy, polypectomy and cystoscopy were commoner among those that are 35 years and above. The difference between patients age and endoscopic procedures was found to be statistically significant ($p < 0.005$).

Discussion

Endoscopic surgery continues to play a significant part in the management of infertile women undergoing assisted reproductive procedures. Such procedures help in evaluation (pre and post ART), treatment option proper as well as manage complications of treatment.^{6,7,11}

In this study more than half of the patient were 35 years and above. This is not surprising as most of the patients present late to ART centres due to lack of awareness, poor accessibility, limited fund, ignorance and having consulted traditional healers prior to presentation.

A meta-analysis demonstrated the deleterious effects of hydrosalpinx on achieving pregnancy in women undergoing IVF. It was shown that the clinical pregnancy rate was about 50 percent lower and the miscarriage rate was more than twofold higher in patients with hydrosalpinx (1144 IVF cycles) compared to the patients without hydrosalpinx (5569 IVF cycles).⁷ The improved clinical pregnancy rate following salpingectomy for hydrosalpinges have been demonstrated by several other studies.^{8, 9, 10} Thus, the justification for tubal disconnection in over one third of patients with hydrosalpinges in this study.

Eldar-Geva et al compared 106 ART cycles in patients with uterine fibroids with 318 ART cycles in age-matched patients without fibroids and concluded that implantation and pregnancy rates were significantly lower in patients with intramural or submucosal fibroids, even those with no deformation of the uterine cavity.¹¹ Stovall et al showed that even after patients with submucosal fibroids are excluded, the presence of fibroids reduces the efficacy of ART.¹² In this study laparoscopic myomectomy and hysteroscopic polypectomy were commonly done for patients above

35 years. This was aimed at improving the success rate considering the negative effects of age on oocyte quality and implantation.

In a review from Lagos, Nigeria, Obajimi GO et al showed that 75% of all hysteroscopies done at a fertility centre were mostly for intrauterine pathologies such as fibroids, polyps, intrauterine adhesion, uterine septum etc.¹³ Similar results have been replicated from the findings of this study.

The studies of Rama Raju and colleagues as well as the RCT of post IVF patients study by Demiroglu and Gurgan showed clearly that pre evaluation of infertile patients in suspected cases improved clinical pregnancy rates.^{14, 15} Hysteroscopy should not be done routinely for all patients in an ART centre. This study has shown that the procedure is commoner in >35 yr olds. Larger studies will be needed to confirm if this should be a routine in this category of patients

Bamgbopa KT in a review article showed extensively how useful hysteroscopy has been in management of patients undergoing ART procedure.¹⁶ This has been reported by several other studies.^{13,14,15}

Conclusion

This study has shown the relevance of endoscopy surgeries to ART in improving the success rate. Although endoscopy should not be carried out on route basis for all ART patients there is need for patient selection and individualization of care to improve pregnancy rate. More so, a prospective randomized study is required to further demonstrate the role of endoscopy in ART patients since this study did not evaluate the pregnancy outcome following the endoscopic procedures.

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