



Assessment of HSG and Ultrasound Findings in Women with Infertility in Irrua Specialist Teaching Hospital (ISTH) and University of Benin Teaching Hospital (UBTH), Edo State - Nigeria

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Abstract

The study aimed at determining the common findings seen in HSG and Ultrasound of infertile women and to relate the common findings to the incidence of infertility in women who presented with infertility in ISTH and UBTH in Edo State, Nigeria. The study reviewed the radiological reports of five hundred (500) female healthy subjects who presented with cases of infertility in Irrua Specialist Teaching Hospital (ISTH) and University of Benin Teaching Hospital (UBTH) in Edo State. The result of the study showed that eighty-eight (88%) of the women who presented with primary (1^o) and secondary (2^o) infertility had bilateral tubal patency with one hundred and ninety five (195) and one hundred and twenty eight (128) cases recorded for both primary and secondary infertility respectively. Majority of the patients with bilateral tubal patency representing about 52% were all in the age bracket of (20 - 29) years with one hundred and twelve (112) and seventy seven (77) patients for both primary and secondary infertility respectively, making a total of one hundred and eighty nine (189) for the above mentioned age group. Eight (8%) of the patients had unilateral tubal patency with thirteen (13) and (15) cases recorded with left and right tubal occlusions respectively, while four (4%) had bilateral tubal blockage. Sonographically, thirty four (34%) of the patients had uterine and ovarian masses with majority in the age bracket of (40 to 49) years while five (5%) had different pelvic inflammatory diseases. The remaining sixty one (61%) of the patients presented for ultrasound were normal and majority in the age bracket of (20 to 29) years.

Keywords: Infertility, HSG, Ultrasound, Patency

Introduction

Infertility is a condition associated with the male or female reproductive system defined by the failure to achieve pregnancy after 12 months or more of regular unprotected sexual intercourse. Infertility may occur due to male, female or some unexplained factors. Infertility in women can be defined as the inability of a woman to become pregnant after twelve (12) months or more of regular unprotected sexual intercourse (Horwitz et al, 1979) Infertility has become embarrassing and a serious socio-cultural problem among women of child bearing

age in Africa and the world at large. Infertility exerts tension, anxiety and psychological pressure on the couple. In some cultures, it connotes unfaithfulness on the part of the woman before marriage and even punishment from the gods. All these put together compound the pressure on the couple and some marriages have disintegrated due to infertility. Ironically, infertility increases sexual dysfunction and also causes marital discord among couple, especially when they are under pressure to make medical decisions. Studies have shown that about 15% of couples and about half of infertility cases are partly or

wholly caused by a problem in the female partner (Bakos et al, 1994).

In general, infertility can be divided into primary infertility and secondary infertility. Primary infertility refers to couple who have not been able to achieve pregnancy after at least one year of regular unprotected intercourse. Secondary infertility refers to couples who have been pregnant at least once in the past but have not been able to achieve pregnancy again after at least one year of unprotected sex.

About 20% of women experience secondary infertility at some point in their life and secondary infertility is believed to be more common than primary infertility (Lass and Skill, 1997).

Secondary infertility can be due to complication which may have arisen from previous delivery.

The following modalities are available for assessing the structural causes of female infertility. Sonohysterosalpingography (Hycosy), Hysterosalpingography (HSG) and routine pelvic ultrasonography which are the modalities employed in this study. Other modalities include laparoscopy, hysteroscopy and magnetic Resonance Imaging (MRI).

Despite the development of other diagnostic tools such as MRI, Sonohysterosalpingography, hysteroscopy and laparoscopy, HSG remains the examination of choice for the study of the fallopian tubes and the uterus, the associated radiation risks notwithstanding these other modalities lack the clear tubal resolution and definition that conventional or fluoroscopic X-ray HSG offers. HSG provides useful information

outlining the uterine cavity and the fallopian tubes.

It has been reported to have a high sensitivity but a low specificity especially in the diagnosis of uterine abnormalities thus, HSG, in complementary with ultrasound imaging modalities are used as diagnostic tools for infertility generally and also in this work to assess and review common radiological findings in women who present with infertility in ISTH and UBTH, Edo State, Nigeria.

Materials & Methods

The study is both prospective and retrospective, non-experimental study. Hence, both 1^o and 2^o method of data collection was used. The target population for this study involves all women who presented with infertility for HSG and Ultrasound at Irrua Specialist Teaching Hospital (ISTH) and University of Benin Teaching Hospital (UBTH), both in Edo State from January 2020 to March 2021. All the data required for the study and the examinations were all performed and collected from Irrua Specialist Teaching Hospital (ISTH) and University of Benin Teaching Hospital (UBTH).

The research studied the pattern of findings of women who presented with infertility for HSG and Ultrasound at the aforementioned hospitals. Convenient sampling method was used in the course of the study based on the purpose of the study. The sample number was 500. Data was therefore collected from these existing patients' records. The data collected was tallied and analyzed in line with the objectives of the study using appropriate descriptive and percentages and presented in tabular forms in the study.

Results

Table 1: Results of HSG Patients with Primary (1^o) Infertility

Age (years)	Bilateral patency frequency	Percentage (%)	Unilateral patency frequency	Percentage (%)	Bilateral blockage frequency	Percentage (%)
< 20	16	8	-		-	-
20 – 29	112	55	-		-	-
30 – 39	56	28	3	2	2	1
40 – 49	11	5	1	0	1	0
TOTAL	195	96	4	2	3	1

Table 1. for women who presented with primary (1^o) infertility shows that out of 202 women that presented with primary (1^o) infertility, 195 had bilateral patency (n=195) with the highest in the age bracket 20 – 29 years which is the most common finding followed by those with unilateral patency (n=4) and the least common finding is bilateral blockage (n=3).

Table 2: Results of HSG Patients with Secondary (2^o) Infertility

Age (years)	Bilateral patency frequency	Percentage (%)	Unilateral patency frequency	Percentage (%)	Bilateral blockage frequency	Percentage (%)
< 20	2	1	-	-	-	-
20 – 29	63	38	11	7	3	2
30 – 39	41	25	08	5	09	6
40 – 49	22	13	05	3	-	-
TOTAL	128	77	24	15	12	8

Table 2. from the above table shows that out of 164 patients that were presented with secondary (2^o) infertility, bilateral patency was the most common finding with (n=128) with the highest in the age bracket 20 – 29 years followed by unilateral patency (n=24). The least common finding is bilateral blockage (n=12).

Table 3: Results of Ultrasound (USS) for Women who presented with Primary (1^o) Infertility

Age (years)	Normal USS (Frequency)	Percentage (%)	Fibroid, PID'S & Others	Percentage (%)	Anovulation (Frequency)	Percentage (%)
< 20	-	-	-	-	-	-
20 – 29	27	31	6	7	-	-
30 – 39	21	24	10	12	3	4
40 – 49	8	9	11	13	-	-
TOTAL	56	64	27	32	03	4

Table 3. for women who presented with primary (1^o) infertility shows that out of 86 women that presented with primary (1^o) infertility, 56 were cases of normal pelvic scan (n=56) with the highest in the age bracket 20 – 29 years which is the most common finding followed by those with fibroid, PID'S and other uterine and ovarian masses (n=27). The least common findings were cases of anovulation (n=3).

Table 4: Results of Ultrasound (USS) for Women who presented with Secondary (2°) Infertility

Age (years)	Normal USS (Frequency)	Percentage (%)	Fibroid, PID'S & Others	Percentage (%)	Anovulation (Frequency)	Percentage (%)
< 20	-	-	-	-	-	-
20 – 29	13	27	-	-	-	-
30 – 39	7	15	9	19	4	8
40 – 49	5	10	10	21	-	-
TOTAL	25	52	19	40	4	8

Table 4. for women who presented with secondary (2°) infertility shows that out of 48 women that presented with secondary (2°) infertility, 25 were cases of normal pelvic scan (n=25) with the highest in the age bracket 20 – 29 years which is the common finding followed by those with fibroid, PID's and other uterine and ovarian masses (n=19). The least common findings were cases of anovulation (n=4).

Discussion

This study reveals the number of female patients or women who presented with infertility and underwent both HSG and Pelvic ultrasound from January 2020 to March 2021 at Irrua Specialist Teaching Hospital (ISTH) and University of Benin Teaching Hospital (UBTH). A total number of 500 females' subjects were reviewed within the 15 months of this study. This number is quite statistically significant for such a period coupled with the fact that some patient's folders had no results in them. Some folders could not be accessed because they were still with the physician at the time of the study, while some could not be done because of machine breakdown, power outage etc and most times, such patient's do not come back for the examinations.

This depicts that the incidence of female infertility is high when compared with a correlative study by Rasmussen et al in their study which also recorded high incidence of women who presented with infertility and also

observed that oil soluble contrast medium had therapeutic benefit in most cases.

In this study, out of 202 women that presented with 1° infertility for HSG, 195 had bilateral patency representing (n=195) with the highest in the age bracket 20 – 29 years which is the most common finding followed by those with unilateral patency (n=4) and the least common finding is bilateral blockage (n=3).

From the study, out of the 164 women that presented with secondary infertility, bilateral patency was the most common finding with (n=128) with the highest in the age bracket 20 - 29 years followed by unilateral patency (n=24) and the least common finding is bilateral blockage (n=12) with the highest in the age bracket 30 – 39 years as it was with the women who presented with 1° infertility which correlates with a previous study by Rowel et al which recorded more women with bilateral patency within the age bracket of 20 – 29 years and were also able to establish

that the major cause of infertility associated with tubal and peritoneal factor is pelvic inflammatory disease (PID).

Also from the study, out of 86 women that presented with primary infertility for ultrasound, (n=56) were cases of normal pelvic scan with the highest in the age bracket 20 – 29 years which is the most common finding followed by those with fibroid, PID's and other uterine and ovarian masses (n=27). The least common findings were cases of anovulation (n=3).

Lastly, for women who presented with 2° infertility for ultrasound shows that out of 48 women that presented with 2° infertility, 25 were cases of normal pelvic scan (n=25) with the highest in the age bracket of 20 – 29 years which is the most common finding followed by those with fibroid, PID's and other uterine and ovarian masses (n=19) which correlates with a previous study by Decherney et al in their study which recorded a significant number of normal cases within the same age bracket of 20 – 29 years.

Conclusion

The study was performed on five hundred (500) female health subjects who presented with cases of infertility in Edo State and environment. All the subjects were female adults of respective ages. The examinations were carried out in two federal teaching hospitals in Edo State; Irrua Specialist Teaching Hospital (ISTH) and University of Benin Teaching Hospital (UBTH).

This study found that out of two hundred and two (202) patients that presented with 1° infertility for HSG, one hundred and ninety five (n=195) had bilateral patency representing the highest findings within the age bracket of 20 – 29 years followed by those with unilateral patency (n=4). Out of one hundred and sixty four (164) that presented with 2° infertility, bilateral patency was the most common finding with (n=128) with the highest in the age bracket 20 – 29 years followed by unilateral patency (n=24) and the least common finding is bilateral blockage (n=12). Also, out of eighty six (86) women that presented with primary infertility for ultrasound, fifty six (56) were cases of normal pelvic scan (n=56) with the highest in the age bracket 20 – 29 years which is the most common finding followed by those with fibroid, PID's and other uterine and ovarian masses (n=27).

Lastly, for women who presented with 2° infertility for ultrasound, out of forty-eight (48) women that presented, twenty five (25) were cases of normal pelvic scan (n=25) with the highest in the age bracket of 20 – 29 years which is the most common findings followed by those with fibroid, PID's and other uterine and ovarian masses (n =19). This study also yields positive result according to the purpose of the study when compared with Rasmussen et al and Decherney et al in their studies which both recorded more incidents of bilateral tubal patency and normal pelvic cases respectively.

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