

Original article:

To study post intrauterine insemination conception rate among infertile women with polyp and women with normal uterine endometrium cavity

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Abstract

Objective: To evaluate the role of endometrial polyp as a causative factor of infertility and to determine the difference in post intrauterine insemination conception rate among infertile women with polyp and women without any uterine pathology.

Method: A total of 42 infertile women of age 20-40 yrs were recruited in the study as per inclusion criteria. The study population included 42 women with similar demographic features and age. The study population further divided into two groups according to hysteroscopic findings. In Group-A endometrial polyp were present in 21 women and 21 women had normal uterine endometrial cavity in Group-B. In Group-A polyps were excised by either polypectomy or curettage. Intra uterine insemination (IUI) done in both groups after ovulation induction by tablet clomiphene citrate.

Results: Of the 42 subjects, 21 had polypectomies and 21 had normal endometrial cavity. Among the two groups there were no significant difference in age, type of infertility, length of infertility and demographic feature. Polypectomy subjects had significantly higher pregnancy rates after IUI than women with normal endometrium cavities (52.14% vs 14.2%).

Conclusion: Pregnancy rate after polypectomy was higher in infertility women suggesting a strong cause - effect of the polyp in the implantation process.

Keywords: IUI, endometrial polyp, polypectomy

Introduction

Infertility is general defined as one year of unprotected intercourse without conception. Some prefer the term sub fertility to describe women or couples who are not sterile but exhibit decreased reproductive efficiency approximately 85- 90% of healthy young couples conceive within 1 year most within 6 months. Infertility therefore affects approximately 10-15% couple.¹ Infertility is divided into primary and-secondary infertility. WHO, defines primary infertility as the "Inability to conceive within two years of exposure to pregnancy in sexually active, non-contracepting, and non-lactating women 15 to 49 yrs old."²

Secondary infertility refers to the inability to conceive following a previous pregnancy. Globally,

most infertile couples suffer from primary infertility.³The cause of infertility may be in female, in male or in both. Prevalence of couples infertility is as follows Tubal and pelvic pathology (35%), Male problems (35%), Ovulatory dysfunction (15%), Unexplained infertility (10%) and Unusual problems (5%).¹Unexplained - infertility implies evidence of normal semen quality, ovulatory function, a normal uterine cavity and bilateral tubal patency.

Endometrial Polyp is hyperplastic endometrial growths having a vascular center and a sessile or pedunculated shape extending into the uterine cavity. The overall prevalence of polyps in infertile women ranges between 3% and 10%. The polyps are resistant to the actions of progesterone suggests

they might interfere with implantation, and may cause to local inflammatory changes or distortion of the uterine cavity have been implicated.¹Artificial Insemination is an effective and inexpensive method for managing the patients with unexplained and male infertility. IUI is a widely utilized method for treating distinct types of infertility such as unexplained infertility, endometriosis, male infertility, anovulation and cervical antisperm antibody.⁴ It involves placement of about 0.3 to 0.5 ml of washed, processed and concentrated sperm into the intrauterine cavity by trans-cervical catheterization.⁵

Aims and Objective

To evaluate the role of endometrial polyp as a causative factor of infertility and to determine the difference in post intrauterine insemination conception rate among infertile women with polyp and women without any uterine pathology.

Material and Methods

This hospital based observational descriptive comparative analysis type of study was conducted in Department of Obstetrics & Gynaecology, at S.M.S. Medical College & Hospital, Jaipur from Feb 2013 to Nov 2014. Informed consent was obtained from all the patients before enrollment into this study. The procedures followed were in accordance with ethical standards of the S.M.S. Medical college Ethics Committee. Among infertile women who attending the OPD, 21 with uterine polyp underwent IUI after polypectomy on first come first basis and 21 women with normal endometrium cavity underwent IUI were included in this study. After considering the inclusion criteria (Infertile women of age between 20 to 40 years with normal uterine endometrium cavity or endometrial polyp) and exclusion criteria (Infertile women with Uterine Pathology like Sub-mucosal fibroid, septate uterus, intra uterine adhesions and females with known or diagnosed

contraindications to anaesthesia or surgical intervention to hysteroscopy and females with known or diagnosed medical disorders), they were subjected to detailed history taking, complete general physical, systemic and gynaecological examination. All patients had undergone routine investigations, hormonal profile, ultrasonography for uterus & bilateral adnexa along with husband semen analysis.

All women included in this study had undergone pre-anaesthesia check-up. Then they underwent diagnostic hysteroscopy and laparoscopy. According to hysteroscopic findings, study women were divided into two groups: -

Group-A - in which endometrial polyp seen and polypectomy was done.

Group-B - in which normal endometrium cavity seen.

Ovulation induction done by tablet Clomiphene Citrate 50-100 mg from day 2 to day 6 of menstrual cycle. Then the enrolled subjects underwent follicular study by trans-vaginal sonography in both groups. Ovulation was triggered by intramuscular injection of 5000 IU HCG (Human Chorionic Gonadotrophin), when the leading follicle reached a diameter of >18 mm. IUI was done with washed semen using IUI catheter, 36 hrs after triggering the ovulation in both groups. Cap Progesterone 200 mg per vaginal kept at bed time. Pregnancy rates in Group-A & B were compared on day 16 onwards by using urine β hCG qualitative tests.

Statistical analyses were done using computer software (SPSS version 20 and primer). All data collected were entered on Excel sheet. Quantitative data was summarized in form of Mean+SD. The difference in means was analyzed using student t test. Qualitative data was summarized in form of proportion. The difference in proportion was analyzed using chi square test. The significance level for all statistical analysis was kept at 95%.

Observation and Results

Data tabulated in Table-1 shows that there was no significant difference

observed in age between two groups.

Maximum number of subjects 11 (52.38%) belongs to age group 20-25 years, only 1 (4.76%) subject was in the age group 36-40 years in group-A whereas in group-B 12 (57.14%) subjects belongs to age group 20-25 years, only 1 (4.76%) was in age group 36-40 years. Mean age of Group-A subjects was 25.81 + 5.40 years and 25.90 + 4.23 years was seen in Group-B subjects. There was no significant difference in mean age between Group-A and Group-B.

Table- 2 shows that maximum pregnancy rate observed if the period of infertility was < 6 years in both groups but the number of pregnancy were higher in Group- A (9 v/s 3) which was statistically nonsignificant difference. No pregnancy occurred after 9 years of infertility period in Group-A and 6 years of infertility period in Group-B.

Table-3 shows that pregnancy rate were increasing in order as the sperm motility increased in their respective subgroups of both A and B groups. Statistically no significant difference were seen in both groups.

Data in Table-4 shows the effect of polyp size on pregnancy rate.

Group-A, further subdivided into 4 sub groups according to polyp size (1-5mm, 6-10mm, 11-20mm and >20mm). After removal of polyp, 4 (57.14%) pregnancies out of 7 were found in the <5mm group, 3 (42.85%) out of 7 in 6-10mm group, 3 (60%) out of 5 in 11-20mm group and 1 (50%) out of 2 in >20mm group. No significant difference was observed in pregnancy rate in the sub groups according to size of polyp (P = 1.000).

Data in Table-5 shows the distribution of cases according to urine pregnancy test (UPT) status. In

Group-A out of 21 cases, 11 (52.38%) were UPT positive whereas in Group-B out of 21 cases, 3 (14.29%) were UPT positive. Significantly higher proportion of UPT positive was observed in Group-A as compared to Group-B (52.38% vs 14.29%, p=0.022)

Discussion

Many polyps are asymptomatic and only discovered during the infertility evaluation. Up to 25% of women with unexplained infertility have endometrial polyps on hysteroscopy.⁶ Endometrial polyps adversely affect fertility. There are very few reports in the literature concerning infertility and endometrial polyp, and in none of them is any conclusion reached.

Richlin et al., (2002) demonstrated an increase in glycodeilin levels in the periovulatory period in women with endometrial polyp. Glycodeilin is a protein that facilitates implantation by decreasing natural killer cell activity. During the normal periovulatory phase of a functional cycle, glycodeilin decreases because inhibits sperm-oocyte binding. In this situation, the endometrial polyp produces significant amounts of glycodeilin, thus impairing implantation (Richlin et al., 2002).⁷

In this study an attempt has been made to access the role of endometrial polyp in infertility and pregnancy rate after polypectomy as compared to the normal endometrial cavity. In our study the mean age of the study population was 25.86+4.79yrs. Pramila Koli et al (2013)⁸ had mean age of females 26.4+5.38 yrs in their study that was similar to our study. Tirsoperez Median et al (2005)⁹ had higher mean age 30.8+4.1 yrs and not divided the study population according to age group.

It was observed in our study as the duration of infertility increases pregnancy rate decreases in both the groups. These results were similar to the study of Shahrzad Zadehmodarres et al (2009)¹⁰

that also showed that infertility duration less than 5 years were associated with a significantly better pregnancy rate compared with a longer duration of infertility (27.3% vs 12.2%). In current study, both the groups have higher pregnancy rate when the percentage of motile sperm were found more than 80%. Mohan S Kamath et al (2010)¹¹ reported that maximum pregnancy occurred when the percentage of motile sperm was >80% and minimum pregnancy rate occurred when the percentage of motile sperms was <60% that was similar to our study.

Tirso Prez-Medina et al (2005)⁷ has shown that 19 (76%) pregnancies out of 25 patients occurred in <5mm sub group, followed by 18 (56.2%) out of 32 in the 5-10mm sub group, 16 (61.5%) out of 26 in the 11-20 mm sub group and 11 (61%) out of 18 in the >20mm sub group. These findings are consistent with our results. we did not find statistically significant difference between the size of the polyp and the chance of pregnancy.

However, longer studies are needed to address this question.

Conclusion

Routine diagnostic hysteroscopic evaluation of uterine cavity should be a part of an infertility work-up because of a significant percentage of patients are found to have uterine pathology. Endometrial polyps are found most frequently, with smaller numbers of fibroids, adhesions, retained products of conception, and septi. These abnormalities may impair the success of future treatment cycles, and removal of the pathology is recommended.

Another conclusion obtained from our study is that pregnancy rate after polypectomy was higher in infertile women suggesting a strong cause-effect of the polyp in the implantation process. Pregnancy rate with IUI treatment is also affected by the age of female, duration of infertility and semen parameters.

Table 1: Distribution of Cases According to Female Age

Age Groups (in yrs)	Group-A		Group-B		Total	
	No.	%	No.	%	No.	%
20-25	11	52.38	12	57.14	23	54.76
26-30	6	28.57	6	28.57	12	28.58
31-35	3	14.29	2	9.53	5	11.90
36-40	1	4.76	1	4.76	2	4.76
Total	21	100.00	21	100.00	42	100.00
Mean (In yrs)	25.81 + 5.400		25.90 + 4.230		25.86 + 4.791	
x ² =0.243	d.f.=3		P-1.000		NS	

TABLE-2 : Distribution of Cases According to Period of Infertility and Pregnancy Rate

Period of Infertility (in yrs)	Group-A			Group-B			Chi-Square Test
	No. of Cases (n=21)	No. of Pregnancy (n=11)	Pregnancy Rate (%)	No. of Cases (n=21)	No. of Pregnancy (n=3)	Pregnancy Rate (%)	P-value, LS
1-3	10	6	60.00	6	2	33.33	0.60, NS
4-6	4	3	75.00	8	1	12.50	0.13, NS
7-9	5	2	40.00	3	0	0.00	0.67, NS
>9	2	0	0.00	4	0	0.00	NA

TABLE-3 : Distribution of Cases According to Sperm Motility and Pregnancy Rate

Sperm Motility (in %)	Group-A			Group-B			Chi-Square Test
	No. of Cases (n=21)	No. of Pregnancy (n=11)	Pregnancy Rate (%)	No. of Cases (n=21)	No. of Pregnancy (n=3)	Pregnancy Rate (%)	P-value, LS
40-60	5	2	40.00	11	1	9.09	0.43, NS
61-80	12	6	50.00	6	1	16.00	0.39, NS
>80	4	3	75.00	4	1	25.00	0.48, NS

TABLE-4 : Distribution of Cases According to Size of Polyp and Pregnancy Rate in Group-A

Size of Polyp (in mm)	No. of Cases (n=21)	No. of Pregnancy (n=11)	Pregnancy Rate (5)
1-5	7	4	57.14
6-10	7	3	42.85
11-20	5	3	60.00
>20	2	1	50.00
X ² = 0.439	d.f. = 3	P=1.000	NS

TABLE-5 : Distribution of Cases According to Urine Pregnancy Test (UPT) Status

UPT	Group-A		Group-B		Total	
	No.	%	No.	%	No.	%
Positive	11	52.38	3	14.29	14	33.34
Negative	10	47.62	18	85.71	28	66.66
Total	21	100.00	21	100.00	42	100.00
x ² =5.250	d.f. = 1		P = 0.022		Sig	

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