TITLE: EFFECT OF PATENT DILATED FALLOPIAN TUBE(S) DURING INITIAL HYSTEROSALPINGOGRAM ON TIME TO PREGNANCY

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Background:
Tubal disease accounts for 25-35 % of female infertility. Hysterosalpingogram (HSG) is widely used as a diagnostic tool for evaluation of tubal architecture and patency during initial infertility workups. While hydrosalpinx(ges) are clearly associated with reduced success during fertility treatment, it is unknown whether patent dilated fallopian tube(s) negatively impact fertility.

Objective:
The objective of our study was to compare fertility outcomes between women with patent unilateral or bilateral dilated fallopian tube(s) to those with normal caliber patent tubes on hysterosalpingogram during initial infertility evaluation.

Materials & Methods:
Patients were prospectively collected based on initial HSG study results performed between 2018 to 2022 at Shady Grove Fertility clinics. A total of 85 cases were identified who had either unilateral or bilateral dilated fallopian tubes with free peritoneal dye spillage on HSG. For each study patient, a closest age-matched control patient was identified with a normal HSG performed on the same day. Patients both in study and control group were new patients to our clinic who had HSG performed as part of their initial evaluation. Patients with prior fertility treatment, were excluded. The HSG images of each patient included in the study were reviewed and interpreted by two independent reviewers.

The primary outcomes were time from HSG to positive pregnancy test and clinical pregnancy. Median time to pregnancy was calculated using Kaplan-Meier curves with a log-rank test. All patients who were included had a minimum of 6 months follow up post HSG. This study was Institutional Review Board approved.

Results:
There was no significant difference in age, BMI, AMH, duration of infertility, prior history of abdominal surgery or sexually transmitted disease between the two groups (Table 1). Among the patients with dilated tubes, 66 (77.6%) had unilateral dilation and 19 (22.4%) had bilateral dilation.

Pregnancy was achieved after expectant management in 10 (11.8%) vs. 15 (17.6%) p=0.38, superovulation with timed intercourse in 4 (4.7%) vs. 4 (4.7%); p=1, IUI with superovulation in 21 (24.7%) vs. 11 (12.9%); p=0.76, IVF in 29 (34.1%) vs. 30 (35.3%); p=1 patients in dilated fallopian tube vs. patients with normal HSG. Median time to pregnancy from HSG calculated using Kaplan–Meier (KM) curves was 6 months in both dilated tube and normal HSG group (Hazard Ratio 1.1; 95% CI 0.77-1.59; p=0.56, log-rank). Actuarial pregnancy rate at 12 months (KM estimation) was 70% in dilated tube group and 80% in normal HSG group.

Conclusion:
Salpingectomy is standard of care in the setting of hydrosalpinx but it remains unknown whether this is needed in the case of dilated tubes that have free spill. Our data is reassuring that surgery is likely not required for these patients and the likelihood of infertile women with patent but dilated fallopian tube(s) on HSG could have similar probability of achieving pregnancy compared to those with a normal HSG.

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Variables	HSG Normal study (n=85)	HSG Dilated tube (n=85)	P
Age	34±3.8	34±3.8	0.94
BMI	27.9±6.6	27.9±6.4	0.93
AMH Median (IQR)	4.8±5.5 3.2 (4.8)	5.4±9.3 2.8 (3.4)	0.63
Duration of infertility (m)	12	12	0.42
Infertility diagnosis			
Male infertility	16(18.8%)	23 (27.4%)	0.058
Ovulation disorder	20 (23.5%)	9 (10.7%)	
Uterine factor	1 (1.2%)	4(4.8%)	
DOR	10 (11.8%)	10 (11.8%)	
Endometriosis	5 (6%)	5 (6%)	
Tubal factor	1 (1.2%)	8 (9.5%)	
Unexplained	18 (21.2%)	13 (15.5%)	
Other	14 (16.5%)	12 (14.3%)	
Primary infertility	50 (60.2%)	39 (45.9%)	0.222
h/o PID or STD	5 (5.9%)	12 (14.3%)	0.110
No prior abdominal surgery	66 (77.6%)	56 (68.3%)	0.718
Insurance coverage	47 (57.3%)	57 (67.1%)	0.206

Mean & median duration from HSG to pregnancy (months)	8.2±6.0 6 (8.5)	7.7±8.3 6 (5.8)	0.742
Pregnancy following			
Expectant management	10 (11.8%)	15(17.6%)	0.387
Ovulation induction with TI	4 (4.7%)	4 (4.7%)	1
IUI	21 (24.7%)	11(12.9%)	0.76
IVF	29 (34.1%)	30(35.3%)	1
Total Pregnant	64(75.2%)	60(70.5%)	0.605

Figure: Graph showing time of HSG to pregnancy in months.