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Title:

DOES THE INTERVAL OF TIME BETWEEN HYSTEROSCOPY AND EMBRYO TRANSFER AFFECT CLINICAL OUTCOME?

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Background:

There is limited data on optimal timing from operative hysteroscopy to embryo transfer (ET). Studies restricted to polypectomies and uterine septum resections show no difference in IVF outcome based on varied durations from hysteroscopy to ET. However, hysteroscopic procedures including myomectomies, lysis of adhesions, and retained POCs require further evaluation. This study aimed to assess whether interval from operative hysteroscopy to ET affects pregnancy rates, in order to determine if delaying an ET after operative hysteroscopy optimizes IVF clinical outcome.

Design:

Retrospective cohort study

Methods:

The study included all patients treated at a single, private IVF center who had operative hysteroscopy followed by a day 5 ET from 2012 to 2017. The interval of time from hysteroscopy to ET was calculated and linear regression analyses were performed to assess the impact of time between hysteroscopy and subsequent ET on clinical outcome. A subanalysis, restricted to patients that underwent subsequent single, euploid, frozen ETs, was performed to assess the impact of time on ETs using a uniform protocol.

Results:

A total of 318 patients underwent an operative hysteroscopy followed by subsequent ET. Indications for hysteroscopy included polypectomy (n=205), myomectomy (n=34), lysis of adhesions (n=46), septum resection (n=19), and retained POCs (n=12). The mean interval of time from hysteroscopy to ET was 138.4 ±162.7 (range: 20-1390) days. There was no significant difference in mean interval between procedure and subsequent ET in patients with successful vs. no implantation (Table 1). Patients stratified by interval from operative hysteroscopy to ET had similar clinical outcomes (Table 2). The time from hysteroscopy had no impact on odds of implantation (OR 1.001 (95% CI 0.999-1.002), p=0.5), ongoing pregnancy (OR 1.001 (95% CI 0.999-1.002), p=0.4) or early pregnancy loss (OR 0.997 (95% CI 0.994-1.000), p=0.07) (adjusted for oocyte age, recipient age, endometrial thickness, use of PGS, use of donor egg, fresh vs. frozen ET, ET count). Similar results were observed in the sub-analysis restricted to euploid single frozen ETs from autologous cycles (data not shown).

Conclusions:

The interval from operative hysteroscopy to subsequent embryo transfer does not impact the likelihood of successful clinical outcome. These findings suggest that tissue healing and remodeling after operative hysteroscopy does not negatively impact endometrial receptivity. Though only a small proportion of our patients underwent ET within three weeks post-hysteroscopy, the data are reassuring that implantation and pregnancy rates are not negatively impacted by this short time interval. Patients who have undergone an operative hysteroscopy need not excessively delay their fertility treatment.

Table 1:

Main demographics and cycle characteristics compared among implantation vs. no implantation

	Implantation N=152	No Implantation N=166	P-value
Age	38.1 +/- 4.7	39.2 +/-4.6	<0.05
Oocyte Age	35.3 +/- 5.0	36.1 +/- 5.4	NS
AMH	2.9 +/-2.9	2.7 +/- 2.7	NS
Basal antral follicle count	9.1 +/- 6.4	9.2 +/- 7.3	NS
Endometrial thickness	9.3 +/- 2.2	9.1 +/- 2.4	NS
Proportion of fresh vs. frozen blastocysts	36.4% (55/151)	48.2% (79/164)	<0.05
Proportion of ETs involving screened, euploid embryos	46.7% (71/152)	31.3% (52/166)	<0.005
Proportion of ETs derived from donor oocyte	16.4% (25/152)	15.7% (26/166)	NS
Mean number of blastocysts transferred	1.4 +/- 0.6	1.4 +/- 0.6	NS
Mean interval of time	145.0 +/- 175.1	132.3 +/- 150.7	NS

between procedure and ET			

Table 2:

ET outcomes according to interval from operative hysteroscopy

	<30 days n=27	30-60 days n=88	60-90 days n=70	>=90 days n=133	P-value
Pregnancy rate	63.0% (17/27)	61.4% (54/88)	60.0% (42/70)	55.6% (74/133)	NS
Implantation rate	44.4% (12/27)	51.1% (45/88)	47.1% (33/70)	46.6% (62/133)	NS
Ongoing pregnancy rate	44.4% (12/27)	45.5% (40/88)	38.6% (27/70)	44.4% (59/133)	NS
Early pregnancy loss rate	18.5% (5/27)	15.9% (14/88)	21.4% (15/70)	11.3% (15/133)	NS

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