

Pregnancy outcomes following in-vitro fertilization in a population of subfertile women treated for uterine adhesions with hysteroscopic adhesiolysis

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Background

There are few published studies assessing the impact of treatment of intrauterine adhesions on reproductive and pregnancy outcomes amongst women who subsequently undergo in-vitro fertilization (IVF). Following treatment for Asherman's syndrome and restoration of a normal cavity, risk for abnormal placentation persists. IVF is also an independent risk factor for abnormal placentation, and this combination of risk factors could increase pregnancy risks.

Methods

Women who underwent hysteroscopic adhesiolysis at our tertiary referral center and subsequently underwent IVF with a resultant pregnancy were included. An age-matched control cohort in a 3:1 ratio of women who underwent IVF with a subsequent live birth for non-uterine factor infertility was selected for comparison. Adhesion severity was classified using the 1988 AFS classification system. Primary outcome was endometrial thickness prior to transfer. Secondary outcomes were differences in placental, maternal, and neonatal outcomes between groups, adjusted for prior cesarean section or uterine surgery, prior pregnancy. Frequencies and proportions were calculated for categorical variables; means and SD for continuous variables. Relative risks and 95% CIs were generated using log binomial regression for dichotomous outcomes and Poisson regression for counts. GEE was used to account for patients being included more than once.

Table 1. Endometrial thickness by Severity of IUA

	Cases		
	N	Mean	SD
Total	131	8.27	3.20
Severity of IUA			
Mild: 1-4	64	8.42	2.30
Moderate: 5-8	63	8.32	3.94
Severe: 9-12	4	5.23	0.68

Table 2. Maternal and neonatal delivery outcomes

Outcome	Case N = 156 n (%)	Control N = 94 n (%)	RR	95% CI	aRR	95% CI
Maternal						
Hypertensive disorder of pregnancy	23 (24.47)	32 (20.51)	1.19	0.47-1.92	1.23	0.72-2.08
Postpartum hemorrhage	26 (27.66)	37 (23.72)	1.17	0.75-1.80	1.11	0.70-1.75
Neonatal						
IUGR	13 (14.13)	11 (7.05)	2	0.94-4.2	**	
Preterm delivery	27 (29.03)	26 (16.67)	1.74	1.09-2.78	1.71	1.02-2.88
Placental						
Placental abruption	7 (7.45)	2 (1.28)	5.81	1.24-27.29	**	
Placenta accreta spectrum	28 (28.87)	8 (5.13)	5.63	2.67-11.87	4.56	1.95-10.68
Placenta previa	16 (16.84)	14 (8.97)	1.88	0.96-3.66	1.86	0.95-3.67

Main Results

141 cases and 156 controls were included. Prior to hysteroscopic treatment, 70 cases were classified as having mild, 67 moderate and 4 severe adhesions. Endometrial thickness (mm) prior to transfer by increasing adhesion severity was mild 8.4, SD 2.3; moderate 8.3 SD 3.9; severe 5.2 SD 0.68. Cases had a higher risk of placenta accreta spectrum, adjusted for relevant confounders (aRR 4.56, 95% CI 1.95-10.68), and a higher risk of preterm delivery (aRR 1.71, 95% CI 1.02-2.88). There was no difference in the risk of placenta previa or low-lying placenta amongst cases (16% vs 9%, aRR 1.86 95% CI 0.95-3.67). There was an increased risk of placental abruption amongst cases, however this was a rare outcome and should be interpreted with caution (RR 5.81 95% CI 1.24-27.29). There was no difference in the risk of hypertensive disorders of pregnancy (aRR 1.23 95% CI 0.72-2.08), postpartum hemorrhage (aRR 1.11 95% CI 0.70-1.75) or intrauterine growth restriction (RR 2.0, 95% CI 0.94-4.26) in cases relative to controls.

Conclusions

There is an increased risk of placenta accreta spectrum and preterm delivery in patients who undergo hysteroscopic adhesiolysis for Asherman's syndrome and subsequently undergo IVF, as compared to IVF patients with non-uterine factor infertility.