IMPACT OF ENDOMETRIAL COMPACTION ON PREGNANCY RATE AFTER FROZEN EMBRYO TRANSFER

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Introduction

Successful embryo implantation is a process which requires both a synchronous development and interaction between a hatched blastocyst and endometrium. After widespread application of assisted reproduction technologies (ART), a novel pathophysiological state is recognized which is characterized by numerous failures to achieve pregnancy after embryo transfer (ET) and it is designated as recurrent implantation failure (RIF) however there is no universally accepted definition despite many publications on this topic. RIF is failure to achieve pregnancy after ≥3 unsuccessful transfers of high quality embryos or transfers of ≥10 embryos in total in multiple transfers. RIF can be explained as a unique condition due to unidentified abnormalities or damage of the endometrium which would not even allow the initial steps of embryo implantation (apposition, attachment).

Aim of the work

The aim of the work was to study the impact of endometrial thickness change (endometrial compaction) after progesterone administration on pregnancy rate after frozen embryo transfer in multiple private centres.

Patients and Method

This observational cohort study was conducted on 317 patients in multiple private centers, who underwent frozen embryos transfer. Sample size calculation was performed at 0.05 significance level (alpha) using a two-sided two-sample t-test by the biomedical informatics and medical statistics department at Medical Research Institute (MRI), Alexandria University.

All cases will be subjected to the following:

All of the cycles involved exogenous hormone preparation of the endometrial lining, Hormone therapy with exogenous E2 on day 2 or 3 of a natural cycle., Estrogen (estradiol valerate) 4 mg twice daily was administered orally for about 10–12 days. A transvaginal ultrasound measurement of endometrial thickness was performed to measure endometrial thickness and pattern. The endometrium was considered adequate to start P administration if it was7 mm with a trilaminar pattern. If not adequate, estrogen administration was continued, and serial ultrasound assessment was undertaken until an adequate endometrium observed.

Results

Table (1):Comparison between the two studied groups regarding GCS

	Total (n = 317)	Compacted (n = 105)	Non compaction (n = 212)	T	p
Endometrial thickness end of e2 phase					
Min. – Max.	7.0 – 11.80	7.30 – 11.80	7.0 – 11.0	10.715*	<0.001*
Mean. ± SD	9.07 ± 1.03	9.83 ± 0.93	8.70 ± 0.86		
Median (IQR)	9.0 (8.30 – 9.80)	9.80 (9.0 – 10.6)	8.70 (8.0 – 9.2)		
Endometrium on day of FET (mm)					
Min. – Max.	7.0 – 12.70	7.0 – 11.30	7.30 – 12.70	14.452*	<0.001*
Mean. ± SD	9.60 ± 1.20	8.52 ± 0.88	10.13 ± 0.96		
Median (IQR)	9.70 (8.60 – 10.5)	8.40 (7.9 – 9.1)	10.20 (9.6 – 10.8)		

Conclusion

Our study approved the findings that endometrial thickness change have detrimental effects on endometrial receptivity subsequently affects pregnancy rates. The present study provides affirmation that endometrial compaction after progesterone administration in frozen embryo transfer increase pregnancy rates.