



OVO

CLINIQUE

ASSESSMENT OF ENDOMETRIAL RECEPTIVITY IN IMPLANTATION FAILURE PATIENTS: A CRITICAL STEP FOR CARE MANAGEMENT

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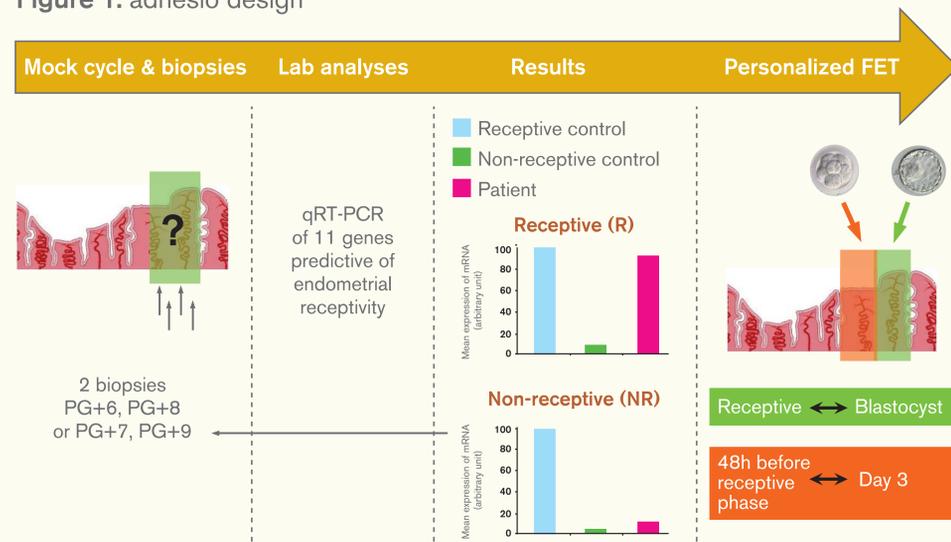
INTRODUCTION

Endometrial receptivity is a key element of embryo implantation and thus pregnancy outcome. The objective of this study was to determine the optimal implantation window of patients with previous failed embryo transfer. **adhesio** is a specific molecular signature of endometrial receptivity. The cycle day where the endometrium is receptive is identified and the timing of the cryopreserved embryos replacement is decided accordingly. Using this diagnostic tool and personalized care management, we aimed to optimize pregnancy rates by transferring the frozen embryo according to the endometrial receptivity.

MATERIAL & METHODS

The expression levels of 11 genes predictive of endometrial receptivity were analyzed in endometrial biopsies retrieved from patients under a mock hormonal substitution treatment, 6 and 8 days after progesterone (PG) administration. The mRNA expression levels were measured by quantitative RT-PCR. From these results, the endometrium was classified as 'receptive' or 'non-receptive'. If the endometrium was found non-receptive for both samples, biopsies after 7 and 9 days of PG were completed on subsequent cycle (Figure 1).

Figure 1. adhesio design



adhesio permit the determination of the likelihood of embryo implantation for frozen embryo transfer (FET) cycle. **adhesio** was completed for 42 patients planning to undergo a FET (Table 1).

Table 1. Population (n=42)

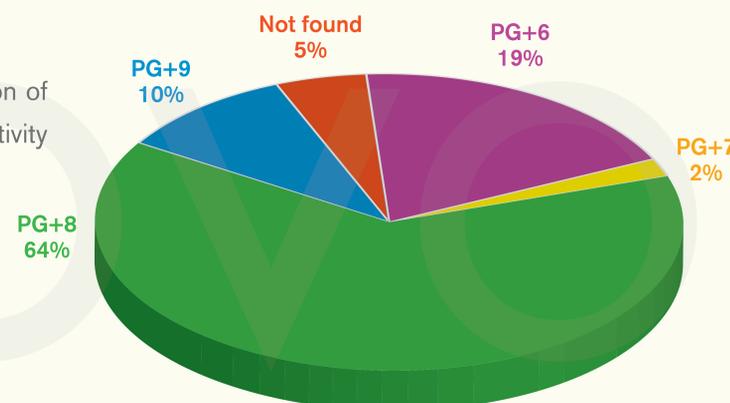
Age of patients (mean ± SD)	35 ± 4,5
Number of previous failed FET (mean ± SD)	2,5±1,5

Twenty-four of these patients had a FET using **adhesio** and personalized care management. These patients were recruited at **clinique ovo** (Montreal, Canada) from July 2016 to August 2017.

RESULTS

At **clinique ovo**, the standard protocol is to transfer a frozen blastocyst 6 days after PG administration. For 19% (n=8) of the patients, a receptive endometrium was measured 6 days after PG. Interestingly, 64% (n=27) of the patients had a receptive endometrium 8 days after PG administration. For 7 patients the endometrium samples were non-receptive, thus additional biopsies were suggested. Six patients completed additional biopsies 7 and 9 days after PG administration and 1 had a receptive endometrium 7 days after PG and 4 had a receptive endometrium after 9 days. Overall 76% of these patients with previous failed FET had a delayed endometrial receptivity (Figure 2).

Figure 2. Distribution of endometrial receptivity among patients



Using **adhesio** with personalized patient care management, the biochemical pregnancy rate of these patients with a history of implantation failure after one or two FET was 37.5% (Table 2), 71% of those biochemical pregnancies developed into ongoing clinical pregnancies with a fetal heart seen on ultrasound.

Table 2. Implantation rate following 1 or 2 FETs (%)

1st FET	29
Cumulative rate (1st and 2nd FET)	37,5

Moreover, 40% occurred while the transfer had been delayed for two days (Table 3). Furthermore, higher pregnancies rate were measured in patients younger than 37 years old (Table 4).

Table 3. Cumulative implantation rate depending on the day of transfer (%)

Overall	37,5
Delayed FET	40

Table 4. Cumulative implantation rate depending on patients age (%)

Patients < 37 y.o.	43,8
Patients ≥ 37 y.o.	25,0

CONCLUSIONS

These results show the importance of verifying the endometrial receptivity of patients with history of implantation failure. Synchronising the embryo-endometrium cross-talk within this population of patients lead to a cumulative implantation rate of 37,5% after one or two frozen embryo transfers, independently of patients ages.

