

## **609: The importance of embryo quality and day of biopsy in frozen single euploid blastocyst transfer cycles**

**Andrea Abdala<sup>1</sup>, Neelke De Munck<sup>1</sup>, Ibrahim Elkhatib<sup>1</sup>, Human Fatemi<sup>1</sup>**

<sup>1</sup> IVIRMA, Middle East, Abu Dhabi, United Arab Emirates

### **Objective**

To verify the most relevant factor in predicting the pregnancy potential of a single euploid blastocyst in frozen embryo transfer (FET) cycles: the blastocyst quality or the day of embryo biopsy.

### **Design**

A retrospective, observational, single center cohort study was carried out between March 2017 and June 2019 (REFA041). Patients who performed a euploid single FET with blastocysts biopsied on Day 5 (D5) or Day 6 (D6) were included. Only the first FET cycle of each patient was considered. Severe male factor and patients with uterine malformations were excluded.

### **Materials and Methods**

Mature oocytes were inseminated by ICSI and/or IVF and normally fertilized oocytes were cultured till day 7. Expanded blastocysts were graded before TE biopsy and inner cell mass (ICM) and trophectoderm (TE) were classified as: A for good, B for fair and C for poor quality, according to Gardner's scoring. Preimplantation genetic testing for aneuploidies (PGT-A) was performed on TE samples by next generation sequencing. Euploid blastocysts were vitrified-warmed and transferred in a natural cycle (NC) or in a hormonal replacement cycle (HRT). Only 331 single euploid FET were included of which 227 were with blastocyst biopsied on D5 and 104 on D6 of women with an average age of 33.9±5.6 years old.

### **Results**

Comparing the fresh cycles characteristics between D5 and D6 FET cycles, no differences were found in maturation (86% vs 85%), fertilization (76% vs 73%), cleavage (98% vs 97%) and euploidy rates (59% vs 58%). No differences were found neither in endometrial preparation (60% vs 52% HRT; 40% vs 48% for NC) nor in endometrial thickness (7.8±1.4 vs 7.9±1.6 mm) for D5 and D6 FET cycles. More blastocysts with ICM and TE grade A were transferred on D5 compared to D6 FET cycles (27% vs 17% for ICM;  $p<0.001$  and 29% vs 15% for TE;  $p<0.001$ ), however, pregnancy (70.9% vs 64.4%) and miscarriage rates (5.7% vs 6.7%) were not significantly different. Univariate analysis showed an effect of embryo quality on pregnancy rates ( $p<0.001$ ) compared to the day of biopsy ( $p=0.203$ ). A multivariate regression controlling for confounding factors demonstrated that TE quality had a relevant impact on pregnancy outcomes rather than the ICM. Compared to the grade A TE, the adjusted OR was 0.454 for B and 0.429 for C ( $p=0.028$ ).

### **Conclusions**

Higher TE quality increases pregnancy rates irrespective of the day at which blastocyst biopsy is performed.

### **Support**

None

### **Disclosure**

None