

### Introduction

The transfer of the patient's 1st polar body (PB) to donor oocyte cytoplasm has proven to be an effective method to help patients with low ovarian reserve and poor response. This technique allows getting high quality blastocysts from modified oocytes in addition to embryos derived from maternal gametes. In confirmation of this, three healthy babies have been born to this day thanks to this technique

### Materials and Methods

The study was performed in the Medical Center IGR from March 2017 to 2017 to January 2021 and involved 361 oocytes (group A) obtained from 68 patients (mean age  $38.4 \pm 6.4$  years) and 334 oocytes (group B) that were received from 47 donors (mean age  $27.0 \pm 3.6$ ). The procedure (Fig.1) was made using Nikon Ti Eclipse (Japan) inverted microscope, Saturn 3 laser console (UK). Preimplantation genetic testing for aneuploidy (PGT-A) was performed using trophectoderm (TE) biopsy that were diagnosed using Ion S5 by Thermo Fisher Scientific(USA). We evaluated the number of developed blastocyst with AA morphological characteristics and euploid embryos from maternal and modified oocytes. Statistical analysis was carried out using Shapiro-Wilk test for normality and Chi-square test.

### Results

The total number of oocytes in this study comprised 695 cells. The mean numbers of original oocytes per patient were  $4.2 \pm 2.7$  and modified oocytes were  $3.9 \pm 2.2$ . Thereby, aggregated amount of oocytes suitable for the fertilization has grown up to  $8.2 \pm 4.7$  per patient. In the group A there were 93 high quality blastocysts (25.8%) that formed from 361 original patients' oocytes and 70 high quality blastocysts (20.9%) developed from 334 modified oocytes (group B). The statistically significant difference (SSD) was not found between the groups on this parameter ( $p > 0.05$ ). 67 blastocysts from group A and 48 blastocysts from group B were biopsied for PGT-A. The number of euploid embryos was 19 (28.4%) and 15 (31.3%) in the group A and group B, respectively, without SSD.



**Figure 1.** Polar body transfer steps

**a.**— enucleation of donor oocyte using polarized light microscopy; **b.** - aspiration of PB1 from maternal oocyte; **c.** - insertion maternal PB1 to enucleated donor oocyte

Microscope Nikon Eclipse (Japan). Magnification 10x40

Photos made by Medical Center IGR, Ukraine

### Conclusions

Research shows that use of the 1<sup>st</sup>PB transfer technique increases the yield of high qualitative blastocysts at least by 14,5%. This technique is useful to increase the number of female germ cells and avoid the full oocytes donation.

### Contacts

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