SUCCESSFUL PREGNANCIES AFTER LASER-ASSISTED TROPHECTODERM BIOPSY OF VITRIFIED BLASTOCYSTS

J. Lim1, J. Eum1, J. Park1, S. Kim1, S. Paek1, H. Seok1, S. Lyu1, E. Chang1, T. Yoon1, W. Lee1, D. Lee1,2

1Fertility Center, CHA Gangnam Medical Center, South Korea
2Department of Biomedical Science, CHA University, South Korea

Preimplantation genetic screening (PGS) has the advantage of quick and strict examination for whole chromosome. Hence, it is used as a useful diagnostic tool in patients with repeated implantation failure (RIF), spontaneous abortion and advanced maternal age. In past decade, trophectoderm biopsy in cryopreserved blastocysts was not widely used because of technical difficulty and time constraints.

However, due to the development of laser system in ART, the accessibility of trophectoderm biopsy has been increased. Thus, we determined to identify the effectiveness of PGS of vitrified-warmed blastocysts through the trophectoderm biopsy of using a laser. This study was carried out in CHA fertility center from January 2014 to August 2014. Vitrified blastocysts were warmed in the morning before the scheduled embryo transfer day. Then, zona pellucida perforating by laser was carried out before full re-expansion. After re-expansion, approximately 3-7 trophectoderm cells were biopsied by laser. These cells were analyzed by using array-comparative genomic hybridization. Blastocysts diagnosed as normal were transferred in the next morning.

After PGS, 15 out of 41 vitrified-warmed blastocysts were diagnosed chromosomally normal (36.6%). Their pregnancy rates were 54.5% (6/11) per transfer and 66.7% (6/9) per transferred patients, and implantation rate was 53.3% (8/15). All pregnant patients are all well maintained up to date.

As a result, in future, PGS of vitrified-warmed blastocyst may improve clinical outcome of patients with high risks of abortion due to the chromosomal abnormality or RIF.