



# IMPACT OF TWICE BLASTOCYST BIOPSIES ON CLINICAL OUTCOME

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## INTRODUCTION

Trophectoderm biopsy with Preimplantation Genetic Diagnosis (PGD) has been shown to increase pregnancy rate and implantation rate. The most reason for second biopsy is failure to achieve a result from the initial biopsy specimen. However there is concern that too much cell removal could be impact to implantation potential.

The aim of this study is evaluate to impact of twice blastocyst biopsies on clinical outcome.

## MATERIAL AND METHOD

This retrospective study analyzed of Preimplantation Genetic Diagnosis (PGD) patients underwent Comparative Genomic Hybridization (CGH) or Next Generation Sequencing (NGS) cycle of blastocyst biopsy at Superior A.R.T. from September 2012 to October 2017.

The data were divided into two group (Figure 1): group 1, (control group) blastocyst biopsied once and vitrified-warmed (G1; n=1542) and group 2, blastocyst biopsied twice due to 'amplification failure' (Figure 2) before vitrified-warmed (G2; n=60).

The p-values <0.05 were consider to statistical significance.

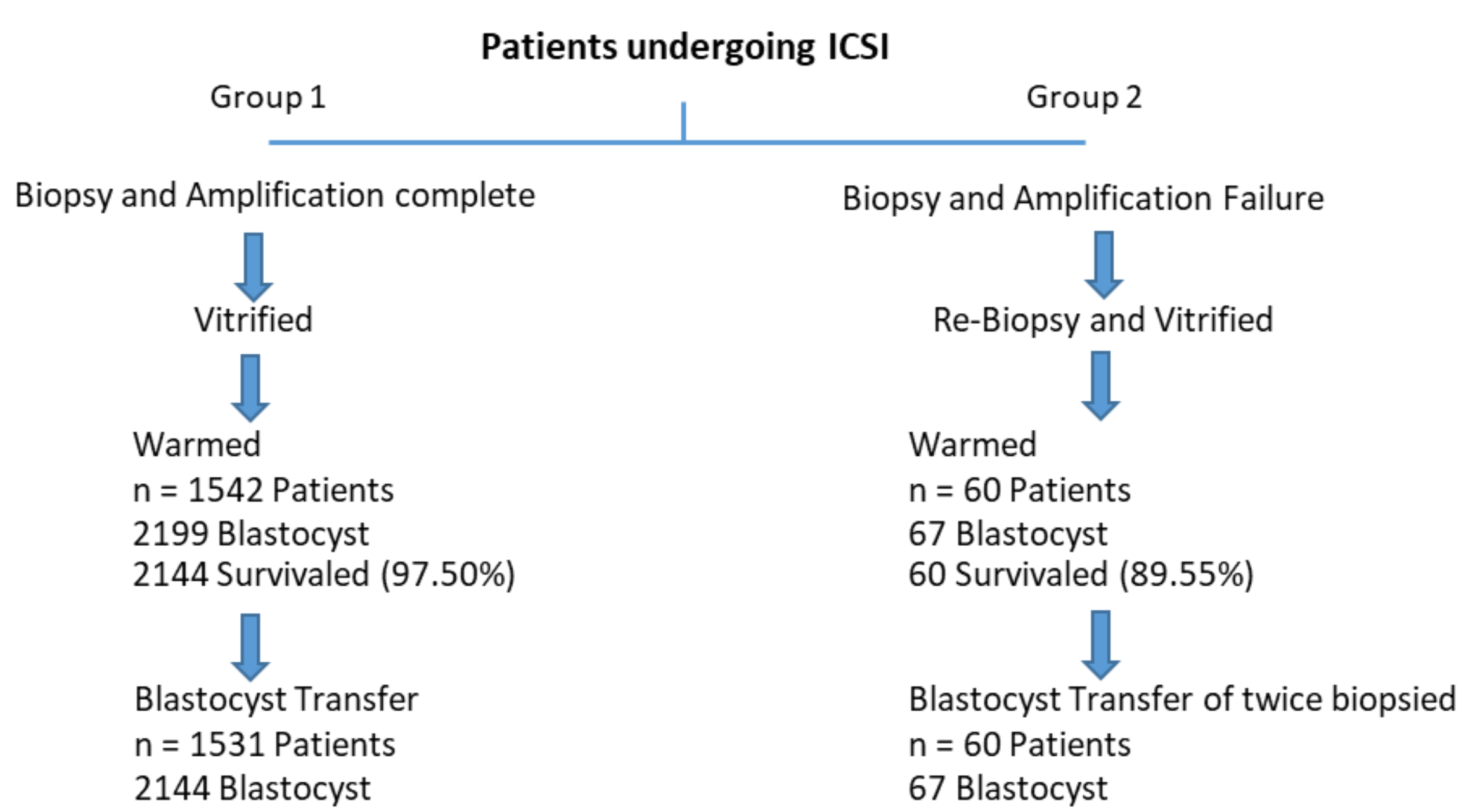


Figure 1 : Flow chart of study design. PGD = Preimplantation genetic diagnosis (PGD)

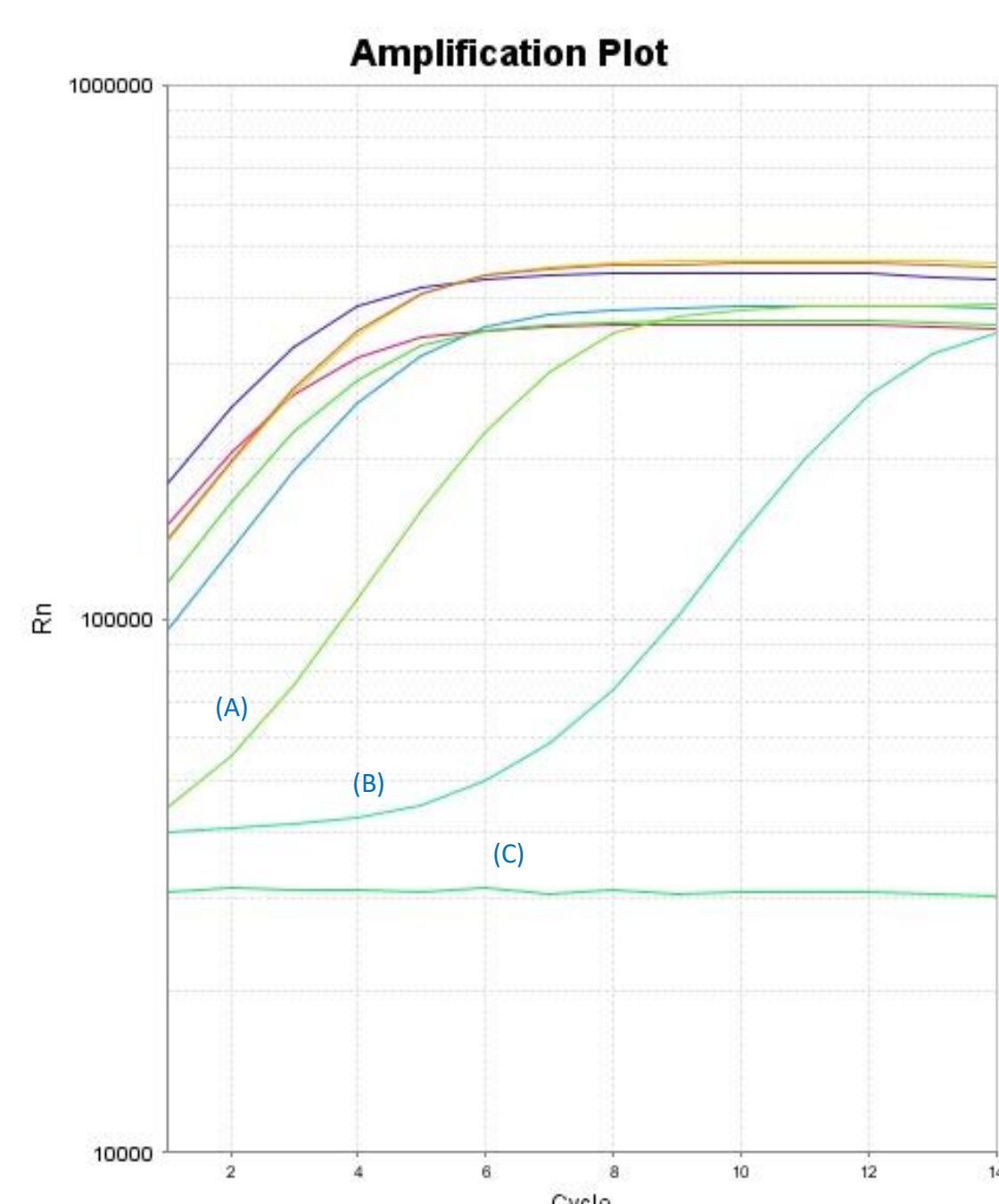


Figure 2 : NGS-based copy number amplification calling : (A) Positive run, (B) Fail run and (C) Negative run

## MAIN OUTCOME MEASURE (S)

Survival rate after warmed, clinical pregnancy rate (CPR), and implantation rate.

## RESULTS

Blastocyst survival rate<sup>a</sup> after warmed were 97.50% for G1, 89.55% for G2 with once biopsied embryos being significantly higher than twice biopsied embryos (G1 vs G2; p=0.00086). Clinical pregnancy rate<sup>b</sup> were 54.34% and 30.00% for G1 and G2, respectively (G1 vs G2; p=0.000209). Implantation rate<sup>c</sup> were 39.89% and 26.86% for G1 and G2, respectively (G1 vs G2; p=0.033067). (Table 1)

Table 1 : Warming outcome of blastocyst transfer with blastocyst biopsied once compare with twice blastocyst biopsied before vitrified.

Outcome	Group 1	Group 2
Warming	2199	60
Recovered	2191 (99.64%)	67 (100%)
Survived	2144 (97.50%) <sup>a</sup>	60 (89.55%) <sup>a</sup>
Transfer cycle	1531	60
Embro transfer	2088	67
Clinicla Pregnancy Rate	832 (54.34%) <sup>b</sup>	18 (30.0%) <sup>b</sup>
Implantation Rate	833 (39.89%) <sup>c</sup>	18 (26.86%) <sup>c</sup>

## CONCLUSION

According to the results, second trophectoderm biopsies impact to embryo survival after warmed and reduced clinical outcomes. Embryologist should balance the trophectoderm cells during blastocyst biopsy to obtain a result for genetic testing.

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