



IS THERE A DIFFERENCE IN SUSTAINED IMPLANTATION RATE (SIR) IN PATIENTS WHO ELECT A GENDER PREFERENCE VERSUS THOSE WHO SELECT THE BEST QUALITY EMBRYO FOR TRANSFER WHEN UTILIZING PREIMPLANTATION GENETIC SCREENING (PGS)?

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OBJECTIVE: To determine if there is a difference in sustained implantation rate between patients who elect a gender preference vs. those who select the single best quality embryo during a frozen embryo transfer.

DESIGN: Retrospective cohort study

MATERIALS AND METHODS: All patients at a single center who pursued PGS for aneuploidy only, elected a single embryo transfer and had euploid embryos of each gender during their first frozen embryo transfer cycle from 2011-2016 were assessed. All embryos were cultured to the blastocyst stage, underwent trophectoderm biopsy and were cryopreserved per protocol. PGS was performed at one reference laboratory. Embryo quality was assessed using the Gardner scale and categorized as good, fair and poor quality per the simplified SART embryo scoring system. Embryo transfer plans were reviewed for priority status (embryo quality vs. gender preference) and patients were divided into 2 groups: (1) those who selected for embryo quality vs. (2) those who elected a gender preference. Sustained implantation rate, defined as patients who were discharged from care at eight to nine weeks of pregnancy with a fetal heartbeat, was compared between the groups. Wilcoxon-Mann-Whitney test, Student's t-test, Fisher's exact test and chi-squared analysis were used where appropriate.

RESULTS: 1,494 patients were included. The average patient age was 35.5yo (quality=35.1 vs. gender=35.8, $p=0.0015$) at the time of embryo transfer and there was no difference in oocyte age (quality=34.1 vs. gender=34.2, $p=0.6275$). 775 had selected quality as priority and 719 desired a gender preference. There was a total of 8,407 euploid blastocysts between the groups (4,195 in quality and 4,212 in gender) with an average of 5.4 (quality) and 5.9 (gender) euploid embryos per patient ($p=0.149$). As expected, the proportion of good quality embryos in the group of patients who elected to transfer their best quality embryo was high ($p<0.001$); however SIR was the same between the groups (quality=65% vs. gender=62.6%, $p=0.35$) demonstrating no diminution in outcomes.

CONCLUSIONS: This is one of the first studies to show that sustained implantation rate was equivalent between patients who designate a gender preference and those who choose the best quality embryo available at the time of transfer.