

## **P119. Effect of Claudin-1 expression on the sperm membrane on the blastocyst rate in euploid embryos**

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**Introduction:** Why top quality euploid embryos do not achieve implantation is one of the enigmas in assisted reproduction techniques (ART). Achieving blastocyst stage and implantation may depend on synchronized expression of membrane protein in germ cells that translate into manifestation of tight junctions in euploid embryos.

**Objective:** Demonstrate that euploid embryos fertilized with sperm that express Claudin 1 in their membranes achieve a better blastocyst rate.

**Methods:** Controlled ovarian stimulation and ovum pickup was done according to treating physician. Semen sample was obtained by masturbation (90% was used for ART and 10% for Claudin 1 biomarker). Sperm was fixed and permeabilized with BD Cytotfix/Cytoperm™, marked with secondary monoclonal antibodies reactive to Claudin 1 and analyzed by flow cytometry. Fluoroscopy was used to determine the expression zone. Statistical analysis, descriptive statistics and normalization by Kologrov was used done using SPSS v23. Significance was determined with  $p < 0.05$ . Embryos were divided into 2 groups: control group with 107 embryos were fertilized with sperm without Claudin 1 expression; study group included 56 embryos with Claudin 1 expression. All embryos were biopsied on day 3 with pulsed laser. FISH was run for chromosomes 1, 13, 15, 16, 17, 18, 21, 22 and sexual.

**Patients:** Twenty six couples diagnosed with primary infertility.

**Intervention:** None.

**Main Outcome Measure:** Blastocyst rate.

**Results:** In control group 25% of oocytes reached blastocyst stage versus 34% of oocytes in study group ( $p = .002$ ). Of biopsied embryos in control group 48% reached blastocyst versus 71% in study group ( $p = .005$ ). 81% of euploid embryos fertilized with Claudin 1 positive sperm reached day 5 while only 68% of euploid embryos reached blastocyst in control group ( $p = .002$ ).

**Conclusions:** The expression of tight junction markers may help increase the blastocyst rate in euploid embryos.

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