

## **COULD SPERM EXPRESSION OF CLAUDIN 1 REPRESENT A NOVEL PARAMETER FOR SPERM QUALITY?**

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**OBJECTIVE:** Demonstrate the presence of Claudin 1 and its localization in sperm, its correlation with the integrity of testis barrier at maturation process.

**DESIGN:** Pilot prospective cohort study conducted from September 2015 to May 2016.

**SETTING:** Not applicable

**PATIENTS(S):** 23 subjects at assisted reproduction technique. Study group were infertile men with semen affection (n=15), control group infertile men with non-affected seminal values (n=8).

**INTERVENTION:** Not applicable.

**MAIN OUTCOME MEASURE(S):** Semen sample obtain by masturbation (90% was used for oocyte fertilization and 10% for Claudin 1 biomarker). Semen evaluation with WHO 2010. DNA fragmentation determine by COMET. Semen sample divided in capacitated and non-capacitated for insulate sperm cells. Sperm was fixe and permeabilized with BD Cytotfix/Cytoperm™, mark with secondary monoclonal antibodies reactive to Claudin 1 (Invitrogen) in both samples. Analyze by cytometer (AB applied bio system), BLI-488nm (Alexa fluor 488). Positive mark analyzes at fluoroscopy to determine the expression zone. Serum sample use to determine estradiol, testosterone, Follicle Stimulating Hormone, Luteinizing Hormone, progesterone and prolactin concentration. Embryo evaluation was performed with Lucinda Veeck Score. Statistical analysis (SPSS v23). We apply descriptive statistics at both groups, normalization by Shapiro Wilk, Spearman correlation considering statistical significance p <0.05. COR curve determines sensibility and specificity for the marker.

**RESULT(S):** Both groups were equivalence in age, Claudin 1 and were positive mark in both groups increased at control group. Study group were positive correlation at capacitated sample: Age 0.67(0.025), non-capacitated Claudin 1 expression 0.734(0.007), FSH 0.709(0.03). Control group Claudin 1 expression positive correlation: Tail defects 0.852(0.015), non-capacitated Claudin 1 expression 0.96(0.00), Estradiol 0.73(0.02), Testosterone 0.73(0.02) and prolactin 0.73(0.02). COR curve determine at 1080 cytometer events of 20,000 analyze, at patients achieve blastocyst stage.83% sensibility 93% specificity.

**CONCLUSION(S):** The measurement of Claudin-1 is a simple, noninvasive evaluation of sperm, offering further information of sperm maturation. It is promising because the expression of Claudin 1 at sperm increases the reach of blastocyst stage independently seminal values. It might traduce a functional via for tubulin organization by centrosome to achieve blastocyst stage. Interestingly the control group correlation with LH could traduce a defect of Leydig-Sertoli cell interaction with sperm (spermiogenesis) and study group correlates with FSH could traduce a defect of seminiferous tubules and sperm formation (spermatogenesis).