

**LAST CHANCE BEFORE EGG DONATION: MODIFIED NATURAL CYCLE IN VITRO FERTILIZATION IN POOR RESPONDER PATIENTS; THE ROLE OF FOLLICLE DIAMETER ON THE DAY OF HCG ADMINISTRATION IN ORDER TO IMPROVE RESULTS.**

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**OBJECTIVE:** Modified Natural Cycle (MNC) IVF may represent an easy, friendly as well as a cheap approach to treat poor responder patients. **Aim:** To investigate the efficacy of MNC in poor responders undergoing IVF treatment and to determinate the proper follicle diameter for hCG administration in order to improve results.

**DESIGN:** Retrospective analysis.

**MATERIALS AND METHODS:** We evaluated 72 cycles of 45 poor responder patients who were treated with MNC (ISMAAR classification) protocol between 1.1.2007-3.1.2009, following the follicle developed spontaneously, using a GnRH-antagonist together with gonadotrophins in the late follicular phase only. All patients were regular menstruating and had at least three IVF failure (range 3-8), developing in previous stimulated cycles < 4 follicles and estradiol (E2) levels <500 pg/ml on the day of hCG administration. Monitoring was performed by measuring follicle growth by TVS on day 5-7 of the cycle and every 2-3 days until it reached >16mm diameter, then LH, E2 and progesterone levels were assessed. HCG was administered according to standard criteria. Oocyte collection, fertilization and cleavage rates were analyzed in regards to follicle diameter  $\geq 17 \leq 19$  mm or  $\geq 19.5$ mm on the day of hCG administration.

**RESULTS:** Egg collection was performed in 64 out of 72 cycles (88.8%). In 46 cycles (72%) at least one oocyte was obtained. Fertilization rate was 54% and cleaving embryos for transfer were obtained in 50% of cycles. When the follicle diameter was  $\geq 17 \leq 19$  mm, at least one oocyte was obtained in 73% of those cycle with fertilization rate of 64% as compared to 60% oocyte retrieval and 48% fertilization rate with a follicle  $\geq 19.5$ mm. Pregnancy was achieved in 6 cases.

**CONCLUSIONS:** For many couples the use of donor oocytes is precluded for different reasons. For these patients modified natural IVF cycle is a feasible alternative with low cost and low risk despite of high cancellation rate, before being referred to egg donation. Administration of hCG at a follicle  $\leq 19$ mm, may improve the results.

**EVEN WHEN NO CHOICE OF EMBRYOS EXISTS THE MULTIPLE PREGNANCY RISK IS HIGH!** V. V. Wong, C. Hughes, K. Waite, E. Mocanu. Human Assisted Reproduction Ireland, Dublin, Ireland.

**OBJECTIVE:** Elective routine transfer of two embryos is still the norm, with the exemption of a few countries where law dictates otherwise. As a consequence, multiple pregnancy rates are still very high. When selection is possible only the best 2 embryos are transferred, the rest frozen. Yet, when only 2 embryos are available is the risk of multiple pregnancy still high? This clinical question has not received a definite answer to date. We set to ascertain the risk of twins and what should the embryo transfer policy be when only 2 embryos are available and none to freeze.

**DESIGN:** A retrospective analysis of prospectively collected data.

**MATERIALS AND METHODS:** All IVF/ICSI treatments performed in an academic tertiary ART centre (HARI Unit, Rotunda Hospital) from 01/01/2005 to 31/12/2007 that resulted in only 2 embryos available for transfer, none suitable for freezing. Parameters analyzed were: age, laboratory procedure, clinical pregnancy, viability and multiple pregnancies.

**RESULTS:** A total of 787 cycles were identified. Clinical pregnancy rates per transfer were 38% overall. When analyzed according to female age, pregnancy rates were 42.9% (<35y), 36.1% (35-40y) and 21.9% (>40y). Overall twin rates in the 3 groups were 26.6%, 13.6% and 0%, respectively. We measured higher twin pregnancy rates in the IVF group when compared with ICSI, 33.3% vs.16.6% (p=0.04) in less than 35 y and 16.3% vs.7.7% (p=0.1) in the 35-40y group.

**CONCLUSIONS:** Despite no selection process can take place, when only 2 embryos are available the likelihood a multiple pregnancy is still significantly high, particularly in women less than 35 years old. This risk is significantly increased in patients undergoing IVF when compared with ICSI. In

order to reduce multiple pregnancy rates single embryo transfer should be considered for all IVF patients below 35 years old. These figures allow for appropriate patient counseling prior to therapy.

**TECHNIQUE AND EFFECTIVENESS OF INTRACYTOPLASMIC MORPHOLOGICALLYSELECTED SPERM INJECTION (IMSI) BASED ON HMC (HOFFMAN MODULATION CONTRAST).**

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**OBJECTIVE:** IMSI which is based on Differential Interference Contrast (DIC) has the following drawbacks: the need for oil immersion and glass bottom dish; low working distance (WD); separation of sperm (SP) selection from SP injection on different microscope; no glass heated stage. The objectives of our study were: 1)to develop HMC microscopic setup to detect vacuoles in SP without the above listed drawbacks; 2)to compare the outcome of HMC-IMSI with conventional ICSI.

**DESIGN:** 402 HMC-IMSI cases were compared with 212 ICSI cases respectively to reveal the influence of SP quality on the HMC-IMSI and ICSI outcomes.

**MATERIALS AND METHODS:** Patients were divided into 3 groups with different SP quality. 1<sup>st</sup> group had patients with testicular or single SP or SP motility (SPM)<15%. 2<sup>nd</sup> group had SP count (SPC) $\leq 20$  mln/ml or SPM from 15% to 30%. 3<sup>rd</sup> group had SPC>20 mln/ml or SPM>30%. 1<sup>st</sup> group had 30 HMC-IMSI and 30 ICSI cases; 2<sup>nd</sup> group – 78 HMC-IMSI and 45 ICSI; 3<sup>rd</sup> group – 294 HMC-IMSI and 137 ICSI. Vacuole-free SP was selected using HMC PlanApo 63x/0.70 lenses with total magnification 10000x. The study and control groups were compared by FR, IR and PR using the two-tailed t-test.

**RESULTS:** There was no statistically significant difference (SSD) between the groups in average age and the number of previous failed attempts (p>0.08). PR in the 1st group had SSD (p<0.01): 30.0% for ICSI and 56.0% for HMC-IMSI, although FR and IR did not differ in the 1st group (p>0.15). In other groups there were no SSD in FR, IR and PR, while FR for the 3d group had SSD for HMC-IMSI (p<0.005).

**CONCLUSIONS:** Microscopic setup based on HMC was realized for IMSI, that allowed to simplify IMSI as a routine ICSI. HMC-IMSI has better contrast, optical sectioning, 3D imaging of vacuoles and no oil immersion of the objective, no need for glass bottom dishes, thermostabilized, cheaper and easier in comparison with DIC-IMSI. HMC-IMSI proved to be the most efficient in the group of patients with TESA or single SP or SPM<15%.

**DOES THE LENGTH OF CONTROLLED OVARIAN HYPERSTIMULATION OR EXPOSURE TO GONADOTROPIN RELEASING HORMONE (GNRH) ANTAGONISTS AFFECT IN VITRO FERTILIZATION (IVF) PREGNANCY RATES?** G. D. Royster, IV, M G. Retzloff, R. D. Robinson, J. A. King, A. M. Propst. Obstetrics and Gynecology, San Antonio Uniformed Services Health Education Consortium (SAUSHEC), Lackland Air Force Base, TX.

**OBJECTIVE:** Compare pregnancy outcomes between shorter and longer In Vitro Fertilization (IVF) cycles using gonadotropin releasing hormone (GnRH) antagonists. IVF cycles were compared while controlling for both; length of GnRH antagonist use (< 4 days vs.  $\geq 4$  days) and total length of ovarian gonadotropin stimulation (<10 days vs.  $\geq 10$  days).

**DESIGN:** Retrospective cohort analysis.

**MATERIALS AND METHODS:** This retrospective cohort study evaluated all IVF cycles at Wilford Hall Medical Center, Lackland Air Force Base, Texas, from September 2002 through May 2007, that used ganirelix acetate (351 patients underwent 412 cycles). Continuous parametric variables with means were normally distributed and compared using the student's t – test. Categorical variables between groups had their distributions compared using Chi-squared (X) analysis. SPSS Sample Power 2.0 was used to calculate odds ratios and sample sizes. P values of < 0.05 were considered statistically significant.