

**The Effect of Media Type, Gas Environment and Incubator Model of IVF Success Rates.**

R Buyalos, M Li, F Miller, G Hubert, A Kumar, M Schiewe. Fertility and Surgical Associates, Thousand Oaks, CA.

**Objective:** To optimize ongoing clinical pregnancy rates in an unselected IVF population we retrospectively compared two different media formulations (P1/G1/G2 sequential to LifeGlobal medium), contrasted a 6% CO<sub>2</sub> in air to a 6%CO<sub>2</sub>/5%O<sub>2</sub>/89%N<sub>2</sub> gas incubator environment, and finally evaluated the effectiveness of two different types of incubators (Sanyo MCO-5M vs Heraeus 240). Over a one year period between April 2006 and March 2007, treatments were applied in quarterly increments.

**Methods:** All patients experienced controlled ovarian hyperstimulation, followed by egg retrieval 35 hr post-hCG. Eggs were recovered and placed in P1 medium + 5% HSA until insemination. Eggs were moved to a more complex media containing 5%HSA/5%SS post-ICSI or post-IVF fertilization check. Embryos were evaluated on Day 3 and transferred on Day 3 to 5 depending on the number/quality of embryos available and the IVF history of the patient. Transfers were performed under ultrasound guidance, primarily using a Wallace catheter.

**Results:**

| CATEGORIES   | AGE <35yo + Donor Cycles |              |               | AGE <38yo + Donors |              |               |
|--|--------------------------|--------------|---------------|--------------------|--------------|---------------|
|  | n                        | # (%) +b-hCG | # (%) OngPreg | n                  | # (%) +b-hCG | # (%) OngPreg |
| <b>6% CO<sub>2</sub>/Air Incubation</b>                                |                          |              |               |                    |              |               |
| [2ndQrt06]   |                          |              |               |                    |              |               |
| <b>P1/G1/G2 media</b>  | 49                       | 40 (82)*     | 31 (63)*      | 75                 | 54 (72)      | 42 (56)       |
| [4thQrt06]   |                          |              |               |                    |              |               |
| <b>Global medium</b>   | 49                       | 29 (59)      | 24 (49)       | 65                 | 42 (65)      | 33 (51)       |
| <b>6% CO<sub>2</sub>/5% O<sub>2</sub>/90% N<sub>2</sub> Incubation</b> |                          |              |               |                    |              |               |
| [1stQrt07]   |                          |              |               |                    |              |               |
| <b>SANYO Mini</b><br>{LG media}  | 29                       | 22 (76)      | 21 (72)*      | 38                 | 25 (66)      | 24 (63)       |
| <b>Heraeus 240</b>   | 21                       | 15 (71)      | 13 (62)       | 32                 | 24 (75)*     | 20 (63)       |
| <b>Combined TG</b>   | 50                       | 37 (74)      | 34 (68)       | 70                 | 49 (70)      | 44 (63)       |

- \* Indicates a difference (P<0.05) within column subsection

**Conclusion:** Overall, both the P1/G1/G2 sequential system and the LG all-in-one medium produced good pregnancy rates under standard 6% CO<sub>2</sub> in air conditions. In contrasting the LG system, tri-gas incubation significantly improved pregnancy outcomes by reducing SABs and biochemical pregnancies (50% decrease), resulting in a higher ongoing clinical pregnancy rates. No difference was observed in the type of incubator used, however this is one of the first reports validating the clinical effectiveness of the new mini-Sanyo incubators.