## P51 Prostaglandins Action for the Expansion of the Preimplantation Mouse Embryo

Ja-Myong Lee[1], Hyuck Chan Kwon[2], Yong-Pil Cheon[1]*

*[1]Department of Biology, Natural Sciences, Sungshin Women's University, [2]Major Hospital, Seoul, Korea*

Prostaglandins (PGs) are arachidonate metabolites, which are synthesized via the cyclooxgenase (COX) pathway during periimplantation period in the uterus. Prostaglandin synthase expressed at the time of implantation in the luminal and glandular epithelial cells. Prostaglandins accelerate the trophblastic outgrowth. Especially $PGE_2$ and $PGF_{2\alpha}$ are considered important for blastocyst spacing, implantation, and decidualization in the rodent uterus. We measured the PGs levels in the periimplantation stage embryos and examined the effects of $PGE_2$ and $PGF_{2\alpha}$. At lower $PGE_2$ (0.1, 1, 10 uM), expansion was accelerated significantly compared with the control. The higher concentration $PGE_2$ (100 uM, 200 uM) showed a toxicity and induced degradation of embryos. In contrast to $PGE_2$, $PGF_{2\alpha}$ are positive in all groups (0.1 to 200 μM). Indomethacin, cyclooxgenases inhibitor, inhibited PGs activity on the expansion mouse embryo, but did not completely block. Exogenous PGs overcame the inhibitory effects of indomethacin. We measured the calcium level on the morula and blastocyst embryonic stage. PGs could be detected in the periimplantation stage embryos. $PGE_2$ level was parallel with the developmental stages. PGEs receptors were detected during perimiplantation stage embryos. Intracellular free calcium level could be modified by $PGE_2$ only in blastocyst. Calcium levels were fluctuated and very intense in the blastocoel compared with the trophectoderm during blastocyst stage. In the trophoectoderm, calcium levels were continuously increased after $PGE_2$ administration. However, $PGF_{2\alpha}$ did not modulate the calcium levels in the blastocyt. From these results we know that PGs improve the blastocyst expansion with para-/auto-crine manners. In addition $PGE_2$, may improve the expansion through calcium signaling pathways in blastocyst. It is suggested that expansion may regulate by several modulators including, calcium, cAMP, $Na^+/K^+$-ATPases.

## P52 Efficacy of frozen-thawed embryo transfer in poor prognostic patients

SJ Choi[1], SH Lee[1], IO Song[2], MK Koong[2], IS Kang[2], JH Jun[1]

*[1]Laboratory of Reproductive Biology and Infertility, [2]Department of OB/GYN, Cheil General Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea*

Objective: Frozen-thawed embryo transfer (ET) could provide more chance of pregnancy in assisted reproductive technology (ART). The aim of this study was to evaluate the efficacy of frozen-thawed ET in poor prognostic patients such as the old age (≥ 38 years) and the patients who did not achieve clinical pregnancy with the first fresh ET cycle (Non-pregnant group).

Materials and Methods: The data was collected from ART cycles from 2003 to 2005 including fresh and frozen-thawed ET cycles. Controlled ovarian hyperstimulation (COH) with conventional insemination or ICSI were performed by routine procedures. Supernumerary embryos were frozen at pronucleus or cleavage stage by the slow freezing method with propylene glycol and sucrose. Frozen embryos were thawed by the rapid thawing method. The frozen-thawed embryos were transferred into patients with appropriate hormonal treatments. Clinical outcome was statistically analyzed by Student t-test and chi square test.

Results: In the old age group, mean age was not different in fresh ET (40.6 ± 2.4) and frozen-thawed ET (40.1 ± 2.2) cycles. However, the clinical pregnancy rate of frozen-thawed ET significantly higher than that of fresh ET cycles (18.9% vs 32.9%, p=0.0064). In Non-pregnant group, there was no difference in the mean age between fresh ET (32.5 ± 3.7) and frozen-thawed ET (32.3 ± 3.8) group in subsequent cycle. The clinical pregnancy rate was higher in the subsequent frozen-thawed ET than that of the fresh ET (38.8% vs 30.8%, p=0.2594).

Conclusions: Our data indicate that the frozen-thawed ET cycle improves the clinical outcome of poor prognostic patients in ART program. It may be related to the affected uterine receptivity by alteration of hormonal conditions in COH cycles. This finding should be substantiated by large sample size and prospective randomized studies.

**Key words:** Frozen-thawed embryo transfer, Poor prognostic patients, Old age, COH, Uterine receptivity