P-27 Effects of Epidermal Growth Factor on the Apoptosis and Implantation Related Genes in Bovine Embryos Developing in vitro

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Background & Objectives: Epidermal growth factor (EGF) induces well-documented mitogenic and differentiating effects on murine and bovine preimplantation embryos. However, the effects of EGF on apoptosis and implantation-related gene expression in bovine embryos developing in vitro have not been evaluated. The objective of this study was to determine the effects of exogenous EGF in the presence and absence of BSA on the preimplantation development of bovine embryos. In addition, we measured cell number, apoptosis, and expression of apoptosis and implantation-related genes of the blastocysts that developed in these culture conditions.

Method: In vitro produced bovine embryos were randomly cultured in the same medium containing 0 or 10 ng/ml EGF in the presence and absence of 0.8% BSA. More 2-cell embryos developed into blastocysts at day 7 when BSA was present than when BSA was absent.

Results: The addition of 10 ng/ml EGF into the medium did not significantly increase the developmental rate and the cell numbers per blastocyst. However, addition of EGF in the presence of 0.8% BSA significantly reduced the degree of apoptosis in the blastocysts ($p<0.01$). To investigate whether EGF modulates mRNA expression of apoptosis-related genes, mRNA was prepared from single blastocysts and each preparation was subjected to RT-PCR for Bcl-2 and Bax transcripts. EGF did not alter the relative abundance of Bax gene expression in the presence of BSA, but increase Bcl-2 ($p<0.01$). The relative abundance of Interferon tau expression was increased by EGF treatment in the presence of BSA.

Conclusions: These results suggest that EGF and BSA synergistically enhance Bcl-2 and interferone tau gene expression, which may result in a net increase in viability in bovine embryos.

P-28 Effect of Gonadotrophic Hormones on AQP Genes Expression and Localization in Mouse Ovary

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Background & Objectives: AQP은 passive water transporter로써 현재까지 11개가 밝혀져 있으며 그 중 AQP 7, 8, 9의 경우 aquaglyceroporin이라 불리며 이 경우 water 뿐만 아니라 glycerol이나 urea같은 small molecule의 투과가 가능하다. Folliculogenesis 시기에 일어나는 급속한 난포액의 축적에 AQPs 유전자를 통해 이루어 질 것으로 추측되고 있다. 본 실험에서는 folliculogenesis 동안의 AQP 7, 8, 9의 발