O-2 자궁내막이 얇은 불임여성에서 새로운 치료 방법으로서 자가골수세포의 자궁벽주입

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Objectives: 자궁내막이 얇아 시험관아기 시술시 반복적 임신 실패를 겪고 있는 불임여성에 있어서 자가골수세포의 자궁벽 주입이 임신을 위한 치료에 있어서 그 효용성이 있는지 여부를 보고자 하였다.

Methods: 자궁내막이 불량한 불임여성을 Bad endometrium 군 (3 mm 미만)과 Weak endometrium 군 (4~7 mm)으로 분류하여 시험관아기 시술이나 냉동 수정란 이식 등의 보조 생식술을 진행하였다. 골수세포는 환자의 Iliac bone에서 골수 생검을 시행하여 RBC와 Platelet 을 제거한 골수세포를 자궁벽이나 자궁강내로 주입을 하였다. 시술은 시험관아기 시술의 배란유도 중이나 냉동 수정란 이식을 위한 estrogen priming 중에 실시하였다. 이후 시험관아기 시술이나 냉동 수정란 이식은 기존의 시술방법으로 진행을 하였다.

Results: 본 연구는 31세에서 52세의 여성 (평균 38세) 16명에서 총 21회의 시술을 진행하였다. Bad endometrium 군은 5명이었고 Weak endometrium 군은 11명이었다. 시술은 3회의 골수주입을 1명에서 2회의 시술을 3명에서 시행하였으며 나머지 12명에서 각각 1회씩 시술을 시행하였다. Weak endometrium 군 11명 중 5명이 임신에 성공을 하였으며 Bad endometrium 군에서는 임신 성공이 없었다.

Conclusion: 자가 골수세포의 자궁벽 주입은 자궁내막이 얇아 임신이 안되는 불임여성에 있어서 새로운 치료 방법으로서 가치가 있을 것으로 사료된다.

O-3 The Effect of Estrogen Treatment During Superovulation on Embryo Development and Expression of VEGF and NO in Mouse Ovary and Uterus

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Objectives: This study was aimed to investigate the effect of estrogen treatment on oocyte quality and the expression of VEGF and nitrix oxide (NO) in ovaries and uterus.

Methods: C57BL inbred female mice were treated with estrogen (1 μM, 10 μM, 100 μM) during the superovulation by PMSG and hCG. The control group was injected with PMSG and hCG without estrogen. The number of embryos retrieved and the rate of blastocyst formation were examined. Also, VEGF and nitric oxide synthase (NOS) expression were evaluated in ovaries and uterus removed immediately after 1-cell embyro collection by Western blot and immunohistochemistry assay.

Results: Both the number of embryos retrieved and the rate of blastocyst formation were significantly increased in 1 μM estrogen group compared to the control group. VEGF and NOS expression in ovaries also enhanced by estrogen treatment and their expressions were the highest in 1 μM group. In uterus, VEGF expression in uterus was similar regardless of dose of estrogen, but eNOS expression was the highest in 1 μM group and has a trend to decrease as estrogen dose increases. In ovary, VEGF was expressed mainly in granulosa cells, stromal cells and endothelial cells. In uterus, VEGF expression was observed mostly in glandular epithelial cells and stromal cells with a similar level regardless of treated-estrogen dose. It

showed low expression of endometrial cells and myometrium. On the other hand, eNOS was expressed remarkably in endothelial cells and thecal cells of ovary, and its expression was increased in glandular epithelial cells and endothelial cells of uterus by estrogen treatment.

Conclusion: In conclusion, estrogen treatment during superovulation has a different effect on embryo quality and the expression of VEGF and NO in ovary and uterus. 1 μM estrogen resulted in the greatest beneficial effect. These results suggest that the improved effect of embryo quality by estrogen may be associated with the increased expression of VEGF and NOS in ovary. Furthermore, it is thought that increased NOS expression in the uterus by estrogen may contribute to induce endometrial development suitable for implantation.

O-4 Vitrified-thawed Embryos Derived from TESE or PESA May Lead to Increase the Cumulative Pregnancy Rate

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Objectives: The combination of intracytoplasmic sperm injection (ICSI) and testicular or epididymal sperm retrieval procedure has made it possible to achieve fertilization and pregnancy for azoospermic patients. Few studies were reported on vitrification of the embryos derived from TESE or PESA. This study was performed to investigate the clinical outcomes of human vitrified-thawed blastocyst-stage embryos derived from TESE or PESA.

Methods: A total of 442 thawing-ET cycles were analyzed from January 2004 to May 2007. ICSI was performed for fertilization. Zygotes were divided into two groups: one was to use ejaculated sperm (EJACULATE), the other was to use testicular or epididymal sperm (TESE/PESA). Zygotes were co-cultured with cumulus cells in a 10 μl YS medium containing 20% hFF. After transferring good quality embryos into the uterus on day 3 or 5, the surplus embryos were further cultured until day 6. The embryos which had developed to the expanded blastocyst-stage were vitrified using EM-grid after artificial shrinkage (Son et al., 2003). Vitrification was performed with the solution consisted of DPBS containing 20% (v/v) hFF, 40% (v/v) ethylene glycol, 18% (w/v) Ficoll, and 0.3 M sucrose. Thawing was carried out by 2-steps on day 3 after ovulation: 1) 0.5 M sucrose in DPBS containing 20% (v/v) hFF for 5 min, 2) only DPBS containing 20% (v/v) hFF for 5 min (Lee et al., 2006). After 18-20 h of incubation, survived embryos were transferred into the uterus. We evaluated the clinical outcomes of vitrified-thawed embryos derived from TESE/PESA (n=41) and compared with those from EJACULATE (n=401).

Results: The survival and hatching rates were 89.6% (1039/1159) and 82.8% (860/1039) in EJACULATE vs. and 93.2% (110/118) and 80.9% (89/110) in TESE/PESA. The clinical pregnancy rates were 47.9% (192/401) in EJACULATE and 48.8% (20/41) in TESE/PESA. There was no difference of clinical outcomes between EJACULATE and TESE/PESA.

Conclusion: The vitrified-thawed embryos derived from TESE/PESA could be obtained similar clinical outcomes to those from EJACULATE. These results suggest that the vitrified-thawed embryos derived from TESE/PESA have viability and may lead to increase the cumulative pregnancy rate.