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## Adverse Effects of Superovulation on Female Reproduction in Mice

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**Background & Objectives:** Superovulation-induced females have significantly fewer pups born in each litter and a higher mortality rate of pups than those born to normal pregnant female. It is delicate and is respected to be involved many factors, but the factors are not enough to understand the superovulation effects on reproduction. In here we studied why the reduced litters in the superovulation-induced mice.

**Method:** Superovulation was induced by a single injection of 5 IU pregnant mare's serum gonadotropin (eCG, i.p.) followed 48 hr later by 5 IU human chorionic gonadotropin (hCG, i.p.). 2-cell embryos were collected from natural or superovulation-induced mice, and cultured for 160 hr. Estrus cycle was check with vaginal smearing. The number of corpus luteum and implantation sites were counted by the time schedule.

**Results:** Superovulated oocytes and embryos had the developmental potency during culture like the oocytes and embryos which were naturally ovulated and fertilized at the estrus stage. The number of decidualization-induced sites were reduced from the average number of embryos which can get superovulation. CD-1 females induced superovulation showed statistically significant decrease in the number of live pups compared with the control. The ratio between leukocytes and epithelial cells was maintained until delivery like in the normal pregnant mice. The number of corpus luteum different from the ovulated numbers.

**Conclusions:** It is suggested that ovarian factor in steroid genesis may one of the main reasons to alert the ovaian functions and uterine functions. We conclude that the ovarian factors are essential for fertility, with a crucial role in ovulation and a secondary role in the maintenance of pregnancy.

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## Defects of Spermatogenesis affect on Pregnancy and Delivery Outcomes in Human IVF-ET Program

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**Background & Objectives:** Paternal effects have been shown on fertilization rate, the speed of embryonic cleavage, embryo morphology, and implantation rates after embryo transfer in convention IVF and intracytoplasmic sperm injection (ICSI). The aim of this study was to find out whether the sperm from defective

spermatogenesis have an effect on fertilization rate, pronuclear (PN) morphology, embryo development and pregnancy outcome in ICSI.

**Method:** Laboratory and clinical data were evaluated in consecutive 82 cycles of ICSI. Data from frozen-thawed sperm and female factor cases were excluded. The patients were classified into normal spermatogenesis (Nor-Sp) group (n=56), including normal ejaculated and obstructive azoospermic patients, and defective spermatogenesis (Def-Sp) group (n=26), including severe oligo-astheno-teratozoospermia (OATS) and non-obstructive azoospermic patients. Oocytes and embryos were cultured with GIII series media. Fertilization was monitored 18~20 hours after ICSI and PN feature was classified into three morphological patterns based on the number and the distribution of nucleoli within PN at 18~20 hours and 24~26 hours after ICSI, respectively. Grades of embryo were examined on the basis of developmental speed, size of blastomeres, and patterns of fragmentation. Sequential embryonic score was calculated by PN morphology and embryonic development. Clinical pregnancy and delivery outcome were determined.

**Results:** Fertilization rate and PN feature were not significantly different between Nor-Sp and Def-Sp group (73.9% vs. 70.9%). In Nor-Sp group, total sequential embryonic score was  $35.6 \pm 12.7$  and mean of transferred sequential embryonic score was  $11.8 \pm 3.5$ . In Def-Sp group, total sequential embryonic score was  $36.4 \pm 16.0$  and mean of transferred sequential embryonic score was  $11.4 \pm 3.4$ . There were no significant differences between two groups in mean of total sequential embryonic score and transferred embryonic score. Mean age of females was similar between Nor-Sp ( $32.0 \pm 3.0$ ) and Def-Sp group ( $30.0 \pm 2.0$ ). Pregnancy rate of Nor-Sp group was higher than that of Def-Sp group (46.4% vs 23.0%,  $p=0.054$ ), and delivery rate of Nor-Sp (41.1%) was higher than that of Def-sp group (19.2%;  $p=0.079$ ).

**Conclusions:** We did not observe paternal effects neither on the fertilization or the early embryonic development. Clinical pregnancy and delivery rate were higher in Nor-Sp group than that of Def-Sp group. These data suggest that pregnancy and delivery outcomes may be affected by defective spermatogenesis in male factor infertility. This finding should be further evaluated with large sample size.

## P-24      사람의 다양한 조직으로부터 얻은 중간엽 및 유사 중간엽 줄기세포의 특성 비교분석

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**Background & Objectives:** 본 연구는 사람의 다양한 조직에서부터 얻은 중간엽 줄기세포 및 유사 중간엽 줄기세포의 유전자와 단백질의 발현을 비교하고자 시행하였다.

**Method:** 골수로부터 얻은 중간엽 줄기세포와 양수, 양막, 제대, 지방 조직으로부터 분리한 유사 중간엽 줄기세포를 RT-PCR과 세포 면역화학반응을 통하여 유전자 및 단백질의 발현양상의 차이점을 알아보았다. 또한, 이들 중 양막과 지방로부터 얻은 줄기세포에서 심장 근육세포 특이 유전자의 발현양상을 알아보았다.

**Results:** 유전자의 발현양상의 경우, 골수에서 얻은 줄기세포는 BMP4, SCF, HLA-ABC, HLA-DR,