

P31 Efficacy and cumulative delivery rates of consecutive 427 PGD cyclesJun JH¹, Lim CK¹, Cho JW¹, Han SC¹, Kim JY², Song IO², Koong MK², Kang IS²¹Laboratory of Reproductive Biology and Infertility, ²Department of OB/GYN, Cheil General Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea

Objectives: Preimplantation genetic diagnosis (PGD) has been applied for the detection of chromosomal and gene abnormalities in human preimplantation embryos. It can effectively prevent the dilemmatic termination of affected fetus after prenatal diagnosis. This study was performed to evaluate the efficacy of PGD and the cumulative delivery rate (CDR) of consecutive PGD cycles in individual patients.

Materials and Methods: Data were retrospectively analyzed from 427 PGD cycles of 226 patients during 1998 – 2005. It included 408 PGD–FISH cycles for chromosomal translocations, aneuploidy screening and sex chromosome abnormality, and 19 PGD–PCR cycles of 13 patients for 7 single gene disorders. The life table analysis for CDR was conducted using Kaplan–Meier product limit procedure, and statistical differences between groups were assessed by log–rank test.

Results: Successful diagnosis rate per biopsied blastomere and transferable embryo rate per diagnosed embryo were 94.8% (4,414/4,656) and 22.8% (1,005/4,414) in FISH and 95.9% (186/194) and 46.4% (90/186) in PCR analysis, respectively. Embryo transfer (ET) was carried out in 91.8% (392/427) of diagnosed cycles. Overall clinical pregnancy rate per ET was 28.8%, and delivery rate with a normal baby per couple was 32.3%. The PGD–PCR cycles for single gene disorders showed higher pregnancy per ET as 42.7% (8/19) and delivery rate per couple as 53.8% (7/13) than those of PGD–FISH cycles. The CDR increased gradually up to 61.6% at fifth cycles and showed plateau in the subsequent cycles. The CDR was significantly higher in younger patients (< 40 years) than older patients (≥ 40 years) group. The CDRs were not significantly different in types of translocations (reciprocal or Robertsonian) and gender of reciprocal carriers (male or female).

Conclusions: Our data showed that the PGD can provide reliable successful diagnosis and pregnancy outcome after ET with normal embryos. Female age is a significant factor for successful deliveries in PGD cycles as similar other assisted reproductive techniques. Data from life table analysis present the efficacy of subsequent PGD cycles, and could be valuable to counsel the couples for PGD.

Key words: PGD, Efficacy, Life table analysis, Cumulative delivery rate, Female age

P32 Meiotic segregation modes of gametes from male and female reciprocal translocation carriers in PGD cyclesLim CK¹, Cho JW¹, Han SC¹, Kim JY², Song IO², Koong MK², Kang IS², Jun JH¹¹Laboratory of Reproductive Biology and Infertility, ²Department of OB/GYN, Cheil General Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea

Objective: To evaluate the clinical outcome of preimplantation genetic diagnosis (PGD) using fluorescence *in situ* hybridization (FISH) and to analyze the meiotic segregation modes of gametogenesis in male and female translocation carriers.

Materials and Methods: PGD with FISH was performed in 36 cycles of 23 couples with reciprocal translocations from January 2004 to December 2005 at our PGD center. Controlled ovarian stimulation and ICSI were performed by routine procedure. Single blastomere with an intact nucleus was biopsied usually on the day 3 after ICSI. Diagnostic probes were selected by reviewing the theoretical segregation of translocated chromosomes. The meiotic segregation modes were analyzed with appropriate probe sets in 24 PGD–FISH cycles. Clinical outcome and the meiotic segregation modes were compared between male and female carriers by Student t–test and Fisher's exact test.

Results: A total of 589 oocytes were retrieved, and 424 (80.6%) out of 526 matured oocytes were fertilized by ICSI. Single blastomere biopsy and FISH analysis were successfully carried out in 93.0% (399/429). Among 77 (19.3% per diagnosed embryo) normal or balanced embryos, 66 embryos were transferred in 31 cycles (86.1% per started cycle). Mean proportion of normal or balanced embryos from female carriers was higher than that of male carriers ($20.4 \pm 13.6\%$ vs $12.7 \pm 8.6\%$, $p=0.062$). Eight ongoing pregnancies were established (25.8% per transfer cycle, 34.7% per couple). Ongoing pregnancy rate per patient of female carriers (42.9%, 6/14) was higher than that of male carriers (22.2%, 2/9). Meiotic segregation modes were analyzed in 280 embryos of 24 cycles. One hundred sixty–two embryos (57.9%) were produced by 2:2 segregation and sixty–two embryos (22.1%) by 3:1 segregation. The 4:0 segregation was observed in eight embryos (2.9%) and the meiotic mode could not figure out in forty–eight embryos (17.1%). The incidence of 3:1 segregation was higher in female than that of male carriers ($25.5 \pm 13.1\%$ vs $15.2 \pm 9.1\%$, $p=0.088$).

Conclusions: Our data indicate that the 3:1 meiotic segregation in oogenesis more frequently occurred than that in spermatogenesis. However, proportion of normal or balanced embryos and pregnancy rate were higher in female carriers than those of male carriers. It may be related to the uncertain affect on spermatogenesis and embryo development in male reciprocal translocation carriers.

Key words: Reciprocal translocation, Meiotic segregation mode, Gametes, PGD