metric, and abnormal pattern. The first cleavage time and embryo development were evaluated at 24 to 26 hours and on day 3 after ICSI, retrospectively. Clinical pregnancy and implantation rate were investigated.

Results: Patient age, cytoplasmic halo, size difference and average size of PN did not differ among the groups. Also, zygote morphology except nucleoli patterns did not differ among the groups. However, fertilization rates were higher ejaculated sperm groups than testicular sperm groups. Zygotes with a symmetric nucleoli or early cleavage showed a significantly higher developmental rate than the others. The ratio of zygotes with a symmetric nucleoli pattern or early cleavage embryos did not differ among the groups except group E. The ratio of good embryos arose from zygotes with a symmetric nucleoli pattern or early cleavage and pregnancy outcome did not differ among the groups except group E. However, in group E, the ratio of good embryos was significantly lower than in the other groups although the zygotes showed a symmetric nucleoli pattern or early cleavage. Pregnancy outcomes of group E were also poorer than the other groups; however, there was no statistically significant difference.

Conclusions: In this study, the quality and origin of sperm, especially testicular sperm from non-obstructive azoospermia, affected not only nucleoli pattern of zygote morphology and first cleavage time but also further embryo development and pregnancy outcome, although the zygotes and embryos showed good morphology. In light of this study, we suggest that developmental competency after fertilization may be affected by some factors derived from sperm, in the case of non-obstructive azoospermia.

P-7 Combined Score System of PN Morphology, Early Cleavage, and Embryo Development is Highly Predictable of Pregnancy Outcome in Human ART Programs

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Background & Objectives: Zygote morphology and the time of cleavage are related to embryo quality and successful pregnancy. In this study, we examined the relationship between combined score for PN morphology and EC and embryo development and further clinical pregnancy outcome.

Method: A total of 229 patients which had undergone IVF-ET from May 2002 to November 2002 in MizMedi hospital was studied. PN morphology was graded according to nucleoli pattern (n=994) and early cleavage (EC) was evaluated at 24~26 hr post-insemination or ICSI (n=667). Cleaved embryos were transferred to patients at day 3 after embryo evaluation. The group of embryo transfer was divided into five groups according to the nucleoli pattern of PN and EC (group A; only P1 + P2 ET, group B; all pattern except P1 + P2 ET, group C; no EC ET, group D; only EC ET, group E; combined group A and group D).

Results: In nucleoli pattern of PN, significantly higher rate of good quality embryos were derived from pattern 1 and 2 (same pattern of several nucleoli present in both PN, P1/P2) zygotes than P6 zygotes. Also, developments of EC group were significantly rapid than that of 2PN group at the same time. Moreover, P5/P6 embryos showed late to start cleavage than P1/P2 embryos. The pregnancy rate of group A was

higher than those of groups B (35.8 vs. 16.0%). And there were higher clinical pregnancy rate of group D compared with group C (36.4 vs. 23.6%). Furthermore, the clinical pregnancy rate of group E was higher than that of groups A or D (44.1 vs. 35.8, 36.4%).

Conclusions: Embryo development and clinical pregnancy rate were related to nucleoli pattern of PN and time of cleavage start. Taken together, we suggest that although PN morphology and EC are important factors of predictive value in the assessment of human embryo quality, a combined evaluation of PN morphology and EC of zygotes may be more obviously indicator for outcome of pregnancy in human ART programs.

P-8 Follicular Blood Flow and Follicular Fluid Concentrations of Vascular Endothelial Growth Factor and Nitric Oxide as Prognostic Factors of IVF Outcome

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Background & Objectives: The aims of this prospective study were to investigate the relationship between the outcome of in vitro fertilization and follicular blood flow, ovarian blood flow, and the follicular fluid concentrations of vascular endothelial growth factor (VEGF) and nitric oxide (NO) to determine whether these factors might be outcome predictor.

Method: This study was performed in 47 women underwent in vitro fertilization with tubal factor (25 women) and male factor (22 women) at infertility clinic of Pusan National University Hospital from Feb., 2002 to June, 2002. Follicular and ovarian blood flow were estimated on the day of hCG administration. Each follicular fluid (FF) was collected at the oocyte retrieval and FF concentrations of VEGF and NO were assessed.

Results: Follicular blood flow was significantly increased in the pregnant group compared to the non-pregnant group. However, age, dosage of gonadotropin administered, the number of oocytes retrieved, fertilization rate, ovarian blood flow, and FF concentrations of VEGF and NO were not significantly different in two groups. There were no differences in any clinical and laboratory parameters including pregnancy rate, FF concentrations of VEGF and NO, and follicular blood flow according to the causes of infertility or age. As follicular size was increased, follicular blood flow and FF concentration of VEGF concentration were increased, but FF concentration of NO was decreased. No correlation existed between FF concentrations of VEGF and NO. The number of oocytes retrieved, the number of mature oocytes, and fertilization rate were not correlated with ovarian blood flow and FF concentrations of VEGF and NO.

Conclusions: These results suggest that follicular blood flow might be an effective prognostic marker of the pregnancy outcome of in vitro fertilization rather than FF concentrations of VEGF or NO, and demonstrate that follicular blood flow and FF concentrations of VEGF and NO were correlated significantly with follicular size. However, this study do not show that age was correlated with FF concentrations of VEGF