

CLINICAL OUTCOME OF USING HYALURONAN-BOUND SPERM IN HUMAN ICSI PROGRAM

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Purpose: Hyaluronan (HA) is a major constituent of the cumulus oophorous matrix and may play a critical role in the selection of functionally competent sperm during in vivo fertilization. Especially, several researches have demonstrated that HA-bound (HB) sperm carry enhanced levels of developmental maturity, sperm chromatin integrity and normal morphology, as well as functional competence. In fact, sperm may influence critically and directly on the paternal contribution to fertilization and embryogenesis. However, in the usual practice of ICSI, selection of sperm is based on their morphology and motility. The objective of this study is to evaluate the effect of using HA-bound sperm with PICSTM dish as a sperm selection in ICSI program for male-factor patients.

Materials and methods: Out of 72 patients undertaken the ICSI program, cycles were randomly divided into two groups. Moving sperm in general culture dish were selected as the Group A (n=36) or binding sperm on the PICSTM dish were selected as the Group B (n=36). Collected sperm was injected into MII-oocytes. The embryonic quality was assessed on Day 1 and 3, and embryonic transfer was performed on Day 2 or 3 after ICSI. Pregnancy and implantation rate were monitored. Remaining embryos were cultured to Day 5 and 6 in order to compare blastocyst formation rate. Statistical significance was tested using the chi-square test.

Results: The fertilization rate of oocytes in the Group B (88.7%, (269/303)) was not statistically different from that of the Group A (89.1%, (295/331)). However, in Day 2-3, the rate of embryo showing good-quality (grade 1) in the Group B (60.5%, (163/269)) was significantly higher than that in Group A (41.6%, (123/295)). Also, differences in the blastocyst formation rate of remained embryos were statistically significant between two groups (Group A: 18.8% (30/160) vs. Group B: 32.5% (40/123), $P \leq 0.05$). And pregnancy rates in the Group B patients (50.0% (18/36)) were significantly higher than those observed in the Group A patients (30.5% (11/36)). Differences in the implantation rate were not statistically significant (Group A: 15.2% (12/79), Group B: 24.4% (20/82)).

Conclusion: The current study showed that using PICSTM dish for sperm selection enhances the quality of embryos and pregnancy rate. Hence, we suggest that this may be an useful method for the selection of sperm compare to the conventional ICSI method.

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