

CAN LASER-ASSISTED INTRA-CYTOPLASM-SPERM-INJECTION MAKE BETTER OUTCOME THAN CONVENTIONAL METHOD?

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Purpose: To compare the fertilization rates and the clinical outcome of the intra-cytoplasm- sperm-injection (ICSI) treatment with and without laser assisted.

Materials and Methods: From Jan. 2009 to Sep. 2009, the patients who received ICSI cycles in our hospital were retrospectively classified into two groups according to the laser were used or not. Group one included 9 patients; the laser was used to make a hole before ICSI. Group two included 11 patients; no particular method was used before conventional ICSI. The same technician in our lab did all the procedures. All embryos that showed 2 pronuclear (2PN) on the next morning after egg retrieval were determined to fertilization. Only patients younger than 40 years old were included. All patients received oral pills and standard long protocol down regulation. Ovulation induction was individualized according to the hormone data at day 2 of cycle after down regulation. 10000 unit of hCG was administrated when at least 2 follicles $\geq$ 16 mm. The progesterone was given immediately after oocytes retrieval in both groups. All patients received Day 3 embryo transfer. Clinical outcome was compared between two groups. Student's t-test, 2-test and Fisher's exact test were used for statistical analyses. $P < 0.05$ was considered statistically significant.

Results: The mean age of patient in-group one was 33.9 $\pm$ 4.5 compared to group two 34.7 $\pm$ 3.1, $p > 0.05$. The peak estradiol level on the day of HCG injection was 2017 $\pm$ 1626 pg/ml in group one compared to 2825 $\pm$ 272 pg/ml in group two, $P > 0.05$. The P4 level on the day of HCG injection was 0.70 $\pm$ 0.3 ng/ml in-group one compared to 0.9 $\pm$ 0.7 ng/ml in group two, $P > 0.05$. The average number of oocyte per retrieval was 5.6 $\pm$ 2.7 in group one and 9.4 $\pm$ 4.8 in group two, $P < 0.05$. The fertilization rate was 83.3% (35/42) in group one compared to 50.6% (43/85) in group two, $P < 0.05$. The total number of embryos in each cycle were 3.9 $\pm$ 2.3 in group one compared to 3.9 $\pm$ 1.9 in group two, $P > 0.05$. The number of embryos per transfer was 2.6 $\pm$ 0.7 in group one compared to 2.9 $\pm$ 1.0 in group two, $P > 0.05$. There was no statistically significant difference in clinical pregnancy rate between two groups (55.5% in group one and 36.4% in group two). The implantation rate in-group one was 34.8% (8/23) compared to 21.9% (7/32) in Group two, $P > 0.05$.

Conclusion: The results indicated that the Laser ICSI made better fertilization rate and created the equal numbers of embryos from less oocyte number. Although the clinical pregnancy rate, ongoing pregnancy rate and the implantation rate shows no statistically difference between two groups the data in group one is better in group II. Beside this the more exposure to laser should be concerned in-group one even the better ongoing pregnancy rate was found in our data. More data and experiences were necessary before the method was used routinely.