

# 試管嬰兒療程中針對高動情素之女性進行囊胚植入是否能有較好的臨床結果?

Can blastocyst-stage embryo transfer make better IVF-ET outcome than cleavage-stage embryo transfer in woman with high oestradiol concentrations?

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## Objective

The possible detrimental effect of supra-physiological oestradiol concentrations on the day of HCG administration has been the subject of dispute. Women with high serum oestradiol concentrations on the day of HCG administration have been reported to have unfavourable pregnancy rates. We try to collect the data of our center to test the delaying embryo transfer (blastocyst-stage) can make better clinical outcome of IVF-ET treatment cycle.

## Material & Method

From Jan. 2002 to Dec 2011, patients who received IVF-ET cycles in our hospital were included in this study with E2>3600 pg/mL on the day of human chorionic gonadotrophin (HCG) undergoing IVF-ET treatment and retrospectively classified into two groups according to the embryo transfer day. The group one included 61 cycles those females with embryo transfer on day 3. The group 2 included 46 cycles those females with embryo transfer on day 5. 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 administered when at least 2 follicles  $\geq 16$  mm. The progesterone was given immediately after oocytes retrieval in both groups. The biochemical pregnancy rate was defined as urine pregnancy test positive. The clinical pregnancy rate was defined as visible gestation sac in the uterine cavity. The early pregnancy loss was defined as pregnancy loss before gestational sac was detected. And the ongoing pregnancy means the pregnancy beyond the twenty gestational weeks. Clinical outcome was compared between two groups. Student's t-test,  $\chi^2$  test were used for statistical analyses.  $P < 0.05$  was considered statistically significant.

Table 1. The base data of two groups

|                                 | Group 1(D3 ET)  | Group2 (D5 ET)  | P value |
|---------------------------------|-----------------|-----------------|---------|
| No. of cycles                   | 61              | 46              |         |
| Age (years)                     | 33.5 $\pm$ 3.2  | 32.6 $\pm$ 3.3  | NS      |
| Basal FSH (mIU/mL)              | 7.1 $\pm$ 2.3   | 6.2 $\pm$ 2.1   | 0.064   |
| Dose of gonadotrophins(unit)    | 2029 $\pm$ 784  | 1801 $\pm$ 706  | NS      |
| Peak E2 level (pg/mL)           | 4871 $\pm$ 1581 | 5011 $\pm$ 1265 | NS      |
| Progesterone (ng/mL)            | 1.5 $\pm$ 0.7   | 1.3 $\pm$ 0.7   | NS      |
| No. of oocytes retrieved        | 11.7 $\pm$ 4.2  | 14.3 $\pm$ 5.4  | 0.008   |
| No. of fertilized oocytes(2 PN) | 7.2 $\pm$ 3.4   | 10.6 $\pm$ 4.3  | <0.001  |
| No. of embryos transferred      | 3.2 $\pm$ 0.7   | 2.4 $\pm$ 0.7   | <0.001  |

Table 1. The clinical outcome of two groups

|                                   | Group 1(D3 ET) | Group2 (D5 ET) | P value |
|-----------------------------------|----------------|----------------|---------|
| Biochemical pregnancy rate        | 57.4%(35/61)   | 58.7%(27/46)   | NS      |
| Clinical pregnancy rate           | 44.3%(27/61)   | 47.8%(22/46)   | NS      |
| Early pregnancy loss              | 22.9%(8/35)    | 18.5%(5/27)    | NS      |
| Ongoing pregnancy/live birth rate | 32.8%(20/61)   | 39.1%(18/46)   | NS      |
| Multiple pregnancy rate           | 51.9%(14/27)   | 45.5%(10/22)   | NS      |
| Implantation rate                 | 24.2%(47/194)  | 26.9%(29/108)  | NS      |

## Results

The mean age (y/o) of patient in group one was 33.5 $\pm$ 3.2 compared to group two 32.6 $\pm$ 3.3. The FSH level on the day 3 was 7.1 $\pm$ 2.3 mIU/mL in group one compared to 6.2 $\pm$ 2.1 mIU/mL in group two,  $P = 0.064$ . The dosage of gonadotropins(unit) used in group one was 2029 $\pm$ 784 compared to 1801 $\pm$ 706 in group 2 with  $P > 0.05$ . The peak E2 level (pg/ml) in group one was 4871 $\pm$ 1581 compared to 5011 $\pm$ 1265 in group 2 with  $P > 0.05$ . The average number of oocyte per retrieval was 11.7 $\pm$ 4.2 in group one and 14.3 $\pm$ 5.4 in group two, with  $P = 0.008$ . The number of embryos per transfer was 3.2 $\pm$ 0.7 in group one compared to 2.4 $\pm$ 0.7 in group two, with  $P < 0.001$ . There was no statistically significant difference in clinical pregnancy rate between two groups 44.3%(27/61) in group one and 47.8%(22/46) in group two with  $P > 0.05$ . The implantation rate in group one was 24.2%(47/194) compared to 26.9%(29/108) in Group 2 with  $P > 0.05$ . The ongoing pregnancy rate in group one was 32.8% (20/61) compared to 39.1% (18/46) in Group 2 with  $P > 0.05$ . The early pregnancy loss rate was 22.9% (8/35) compared to 18.5% (5/27) in group 2 with  $P > 0.05$ .

## Conclusion

In our data the blastocyst-stage embryo transfer make better clinical outcome in woman with high oestradiol concentrations although there was no statistically significant difference.